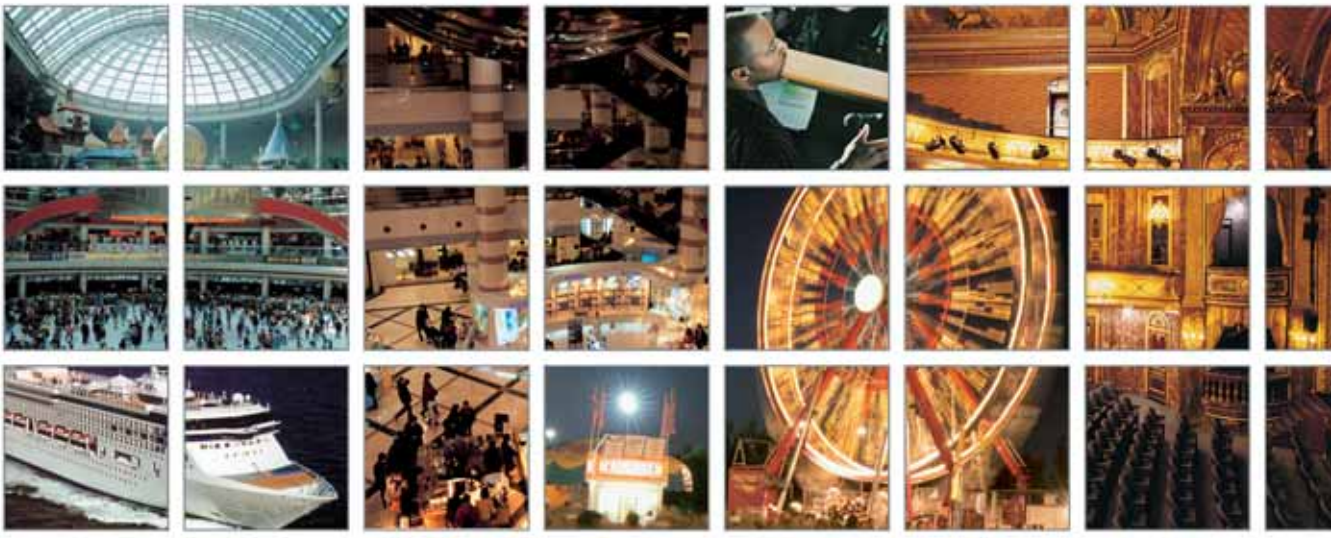
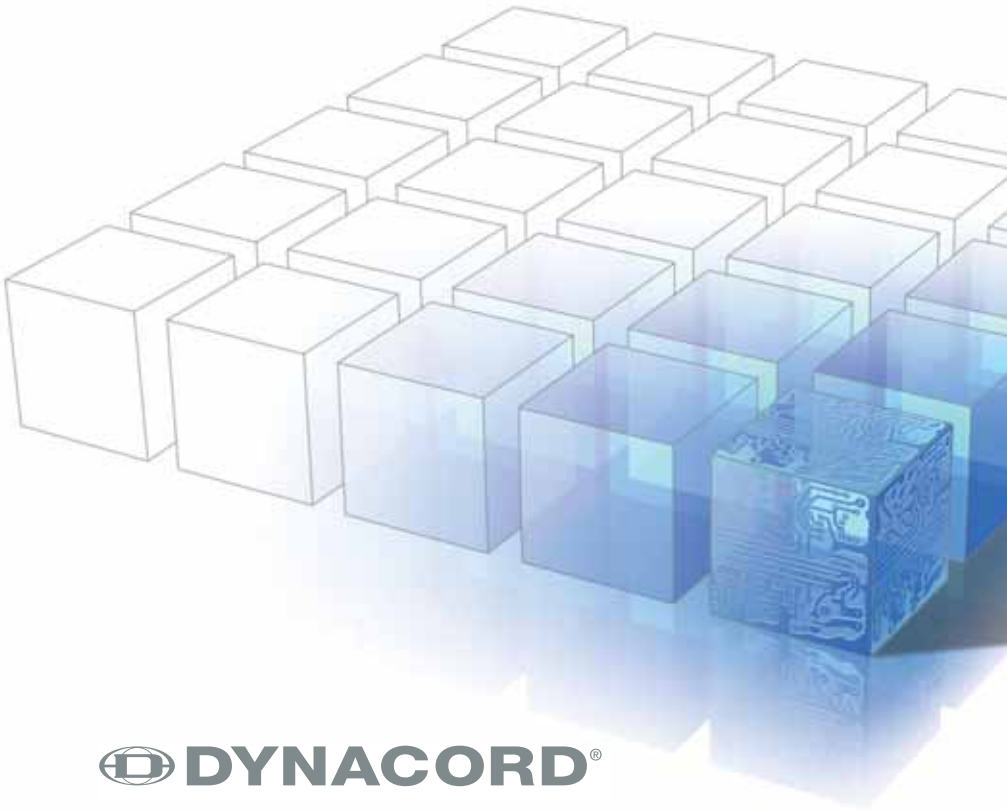
permanent installation **electronics**



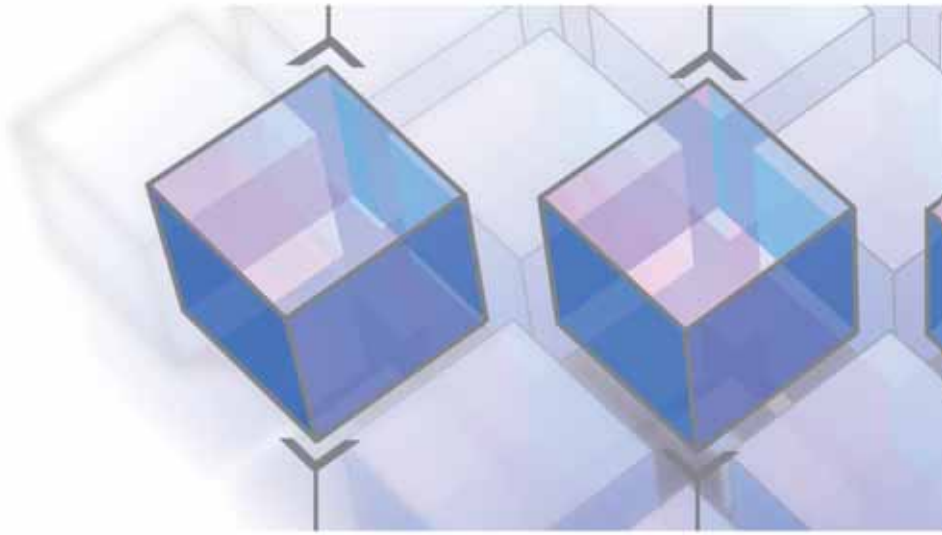
first-class performance | absolute reliability | highest flexibility



DYNACORD®

ENGLISH

Content



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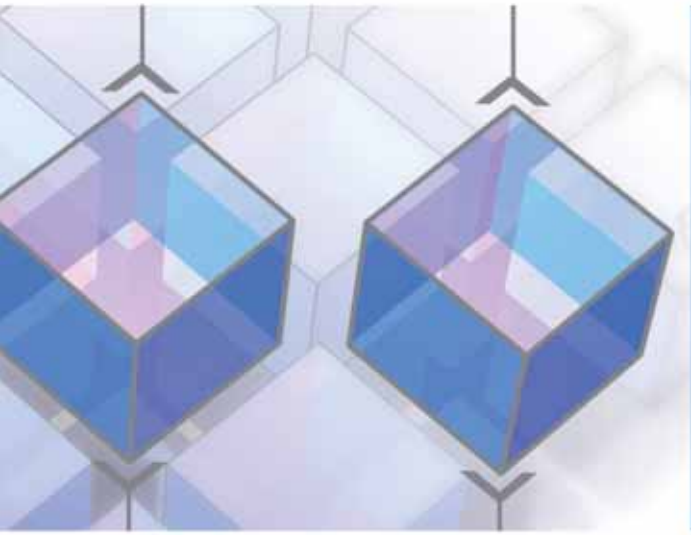
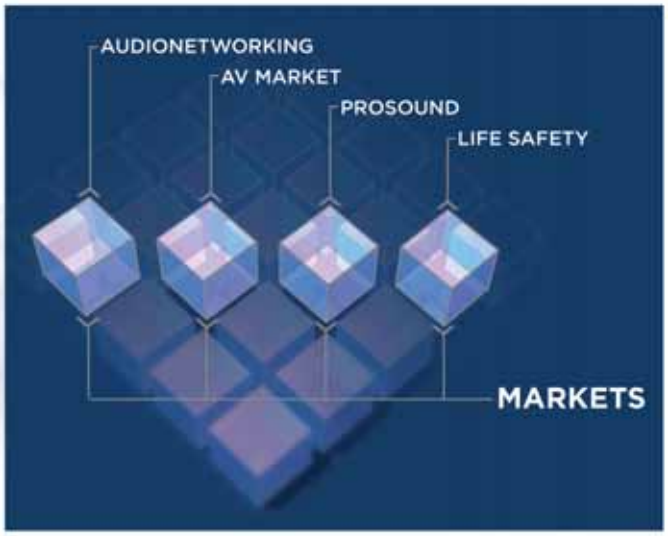
Introduction





For 60 years now, DYNACORD has been a leading manufacturer of professional audio providing innovative, high-quality sound solutions for a comprehensive range of applications. Made in Germany, DYNACORD products deliver world-class audio performance with superior reliability and maximum flexibility.

The DYNACORD **PROMATRIX®** System is a versatile, extensive product range for a wide variety of installation applications including professional sound reinforcement, multimedia, and audio networks.

Developed for the demanding world market the German-made DYNACORD **PROMATRIX®** System has proven a huge success in more than 7,000 installations since its introduction in 1998.

Applications:

DYNACORD sound reinforcement systems are suitable for the widest possible range of applications such as hotels, airports, cruise ships, industrial complexes, hospitals, shopping malls, sports facilities, multipurpose halls, restaurants, schools et al. Additional information:
www.promatrix-system.com

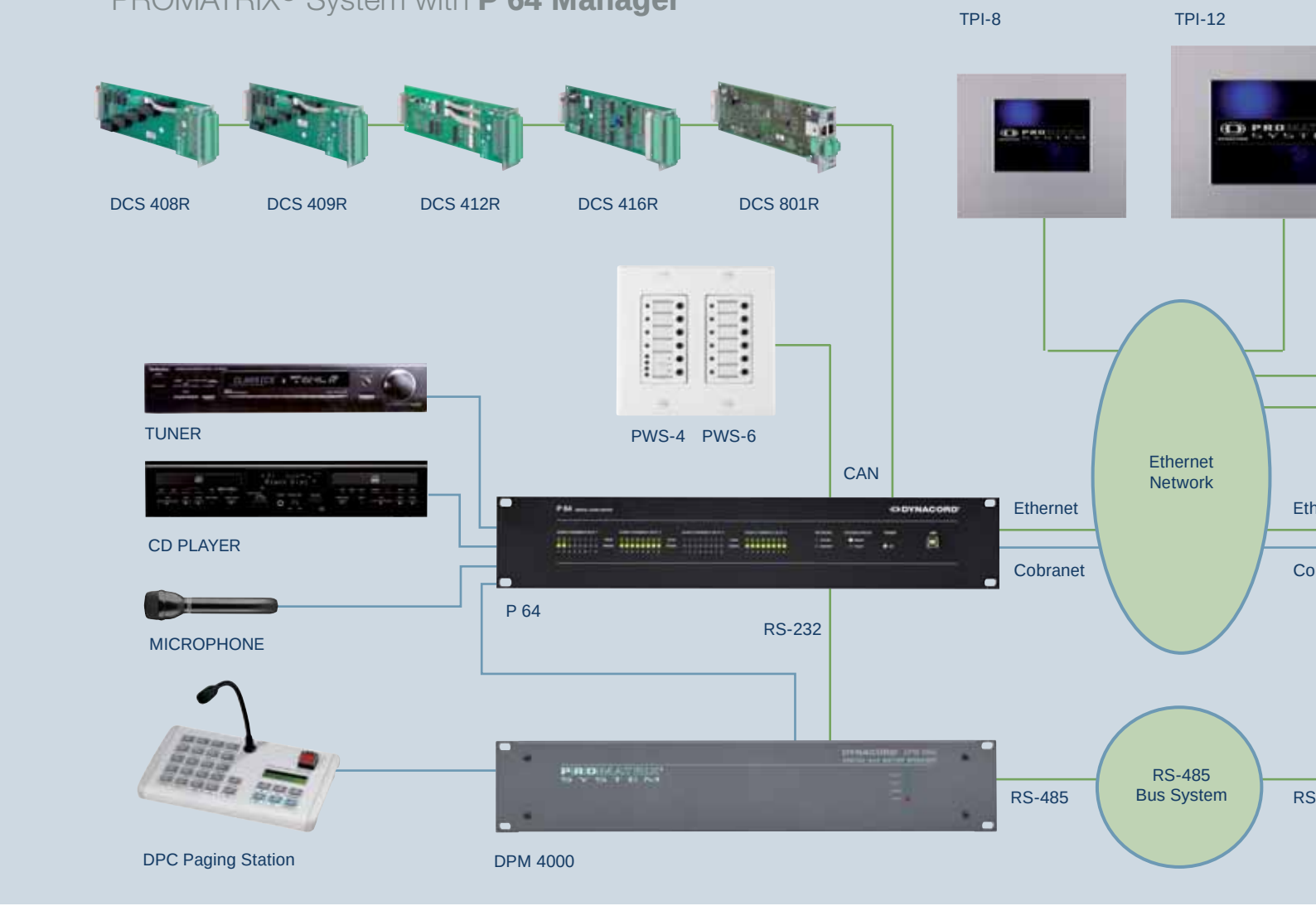
DYNACORD Support:

Apart from high-quality products, DYNACORD also provides the necessary know-how for custom solutions, competent support and efficient distribution. In close cooperation with system contractors all over the world, DYNACORD engineers and distributors design optimum custom installation solutions without compromise.
At DYNACORD, customer satisfaction comes first.

The DYNACORD Benefits:

- paging system conforming to EN 60849 / VDE 0828 standards
- international safety certificates
- approved by the German Federal Railway Office EBA
- no-compromise audio performance
- “Made in Germany“ – superior, controlled quality
- flexibility, reliability and extreme operational safety
- conformity to all environmental standards (e.g. RoHS)
- excellent distribution, support and servicing
- extensive, authorized and well-trained dealerships
- experienced engineers to provide professional project planning and realization
- ISO-9001 certified.

PROMATRIX® System with **P 64 Manager**



The digital **PROMATRIX® System** for professional sound reinforcement, audio networks and multimedia includes the main components

- **P 64** Matrix Manager
- **IRIS-Net™** System Software
- PWS Programmable Wall Stations
- TPI Touch Panels
- DPS 4000 Digital Paging System.

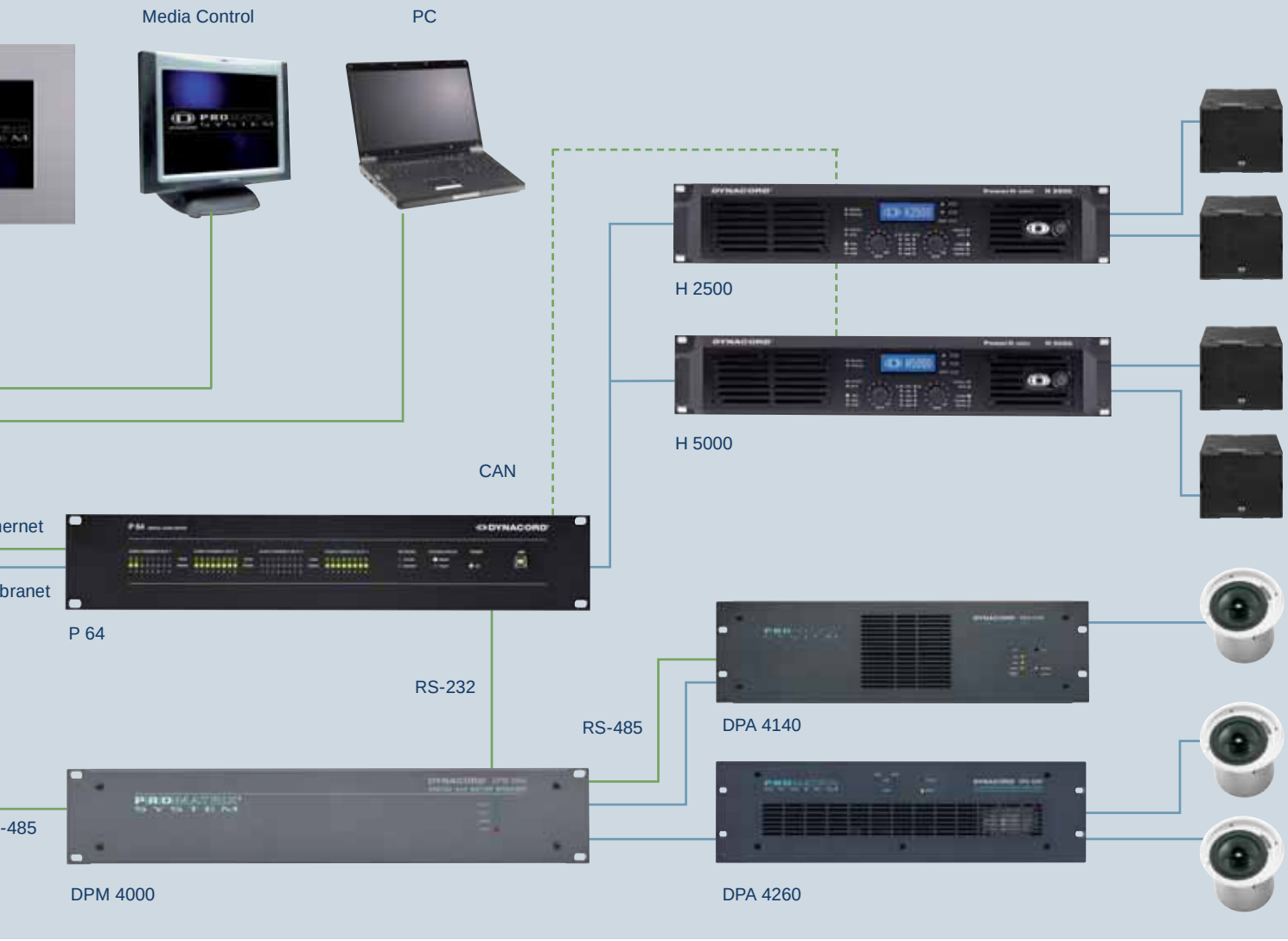
The central system unit **P 64** Matrix Manager accommodates input and output module slots to connect microphones, mixing consoles, DVD and MP3 players, tuners, etc., and power amplifiers. Multiple **P 64s** are easily linked via Ethernet (copper or glass fiber) to set up large audio networks.

Serving as control software for the entire system, **IRIS-Net™** provides individual component configuration and easy integration of **IRIS-Net™** capable power amplifiers, e.g. of the DYNACORD PowerH series.

Due to its open architecture, **IRIS-Net™** facilitates the incorporation of PCs or an already existing media control into the system.

The PWS series of programmable wall stations mainly allows the selection of audio sources and presets also providing volume control. The following models are available:

- PWS-4 Programmable Wall Station,
  4 function keys + 2 volume keys
- PWS-6 Programmable Wall Station, 6 function keys
- PWS-C CAN bus coupler.



TPI touch screens provide a most convenient system control due to **IRIS-Net™** capability.

They are available in two sizes and individually configurable for all applications:

- TPI-8 Touch Panel, 8.4“-display
- TPI-12 Touch Panel, 12.1“-display.

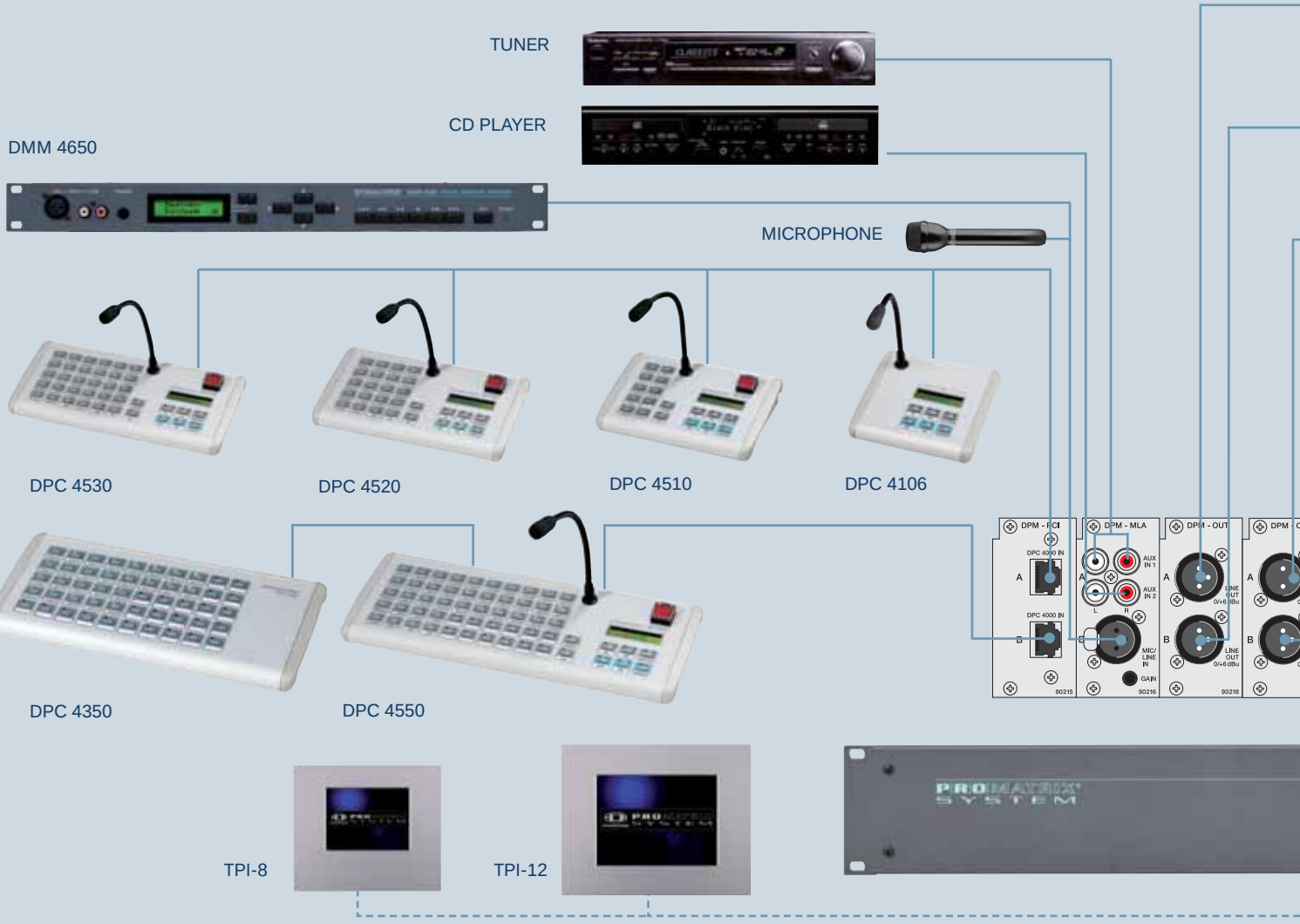
For paging applications conforming to EN 60849 and DIN VDE 0828 standards, a DPS 4000 system is incorporated, comprising the main component groups

- DPM 4000 Matrix Manager
- DPA 4000 Power Amplifiers
- DPC 4000 Paging Consoles
- DCS 400 Control System.

The **DPM 4000** directly communicates with the **P 64**, controlling all announcement and paging functions.
Multiple **DPM 4000** units can be linked via an RS-485 network.

A DCS 400 Control System can be connected to a **P 64** (via DCS 801R) or **DPM 4000** (via DCS 401 / DCS 401R), extending the control functions of both logic and analog inputs and outputs, audio routing, etc.

PROMATRIX® 4000 System



The digital **PROMATRIX® 4000 System** for professional sound reinforcement includes six component groups:

- PROMATRIX Manager DPM 4000
- PROMATRIX Amplifiers DPA 4000
- PROMATRIX Paging Consoles DPC 4000
- PROMATRIX Message Manager DMM 4650
- PROMATRIX Power Supplies DPP 4000
- PROMATRIX Control System DCS 400.

The central system unit **PROMATRIX® 4000 System** manager accommodates analog input module slots to connect paging and mixing consoles, microphones, CD and cassette players, tuners, et al.

18-bit AD converters feed the signal to the digital audio matrix. The **DPA 4000** series power amplifiers are then connected to the 20-bit DA-conversion output modules while the **DPM 4000** control functions are governed by an 8 x 8 logic control matrix.

DPA 4000 series power amplifiers are the “motors” of the **PROMATRIX® System**, available in six versions:

- DPA 4410 4 x 100 watts
- DPA 4411 4 x 100 watts with remote control
- DPA 4120 1 x 200 watts, optional remote module
- DPA 4140 1 x 400 watts, optional remote module
- DPA 4245 2 x 450 watts
- DPA 4260 2 x 600 watts.

The **PROMATRIX® System DPC** paging console models come with a variety of features:

- DPC 4106 6 function keys, LCD
- DPC 4510 8 function keys, 10 selection keys, LCD
- DPC 4520 8 function keys, 20 selection keys, LCD
- DPC 4530 8 function keys, 30 selection keys, LCD
- DPC 4550 8 function keys, 50 selection keys, LCD
- DPC 4350 50 selection keys for optional extension of paging console functions.

A micro controller governs all paging console functions. The selection keys are freely configurable, e.g. for individual circuits, group calls or internal and external control and special functions not necessarily related to sound reinforcement.
This provides complete system control from selected paging consoles with status display of all functions and automated routines to facilitate operation.
By experience, emergency situations put a lot of pressure on the operators of complex systems, often resulting in delayed reaction and false moves. The DYNACORD **PROMATRIX® System** greatly helps reducing such stress, thus minimizing the risks of operational faults.

The **PROMATRIX® System** is completed by the

- **DMM 4650** Message Manager,

a signal processor for digital recoding and reproduction of speech and music that also generates chime and alarm signals.

The **DPP 4000** series power supplies have been especially designed for the entire **PROMATRIX® System**.
They provide intelligent power management such as uninterrupted mains / battery switching, standby switching for extended battery operation, automatic power-up at the presence of priority signals and many other features.

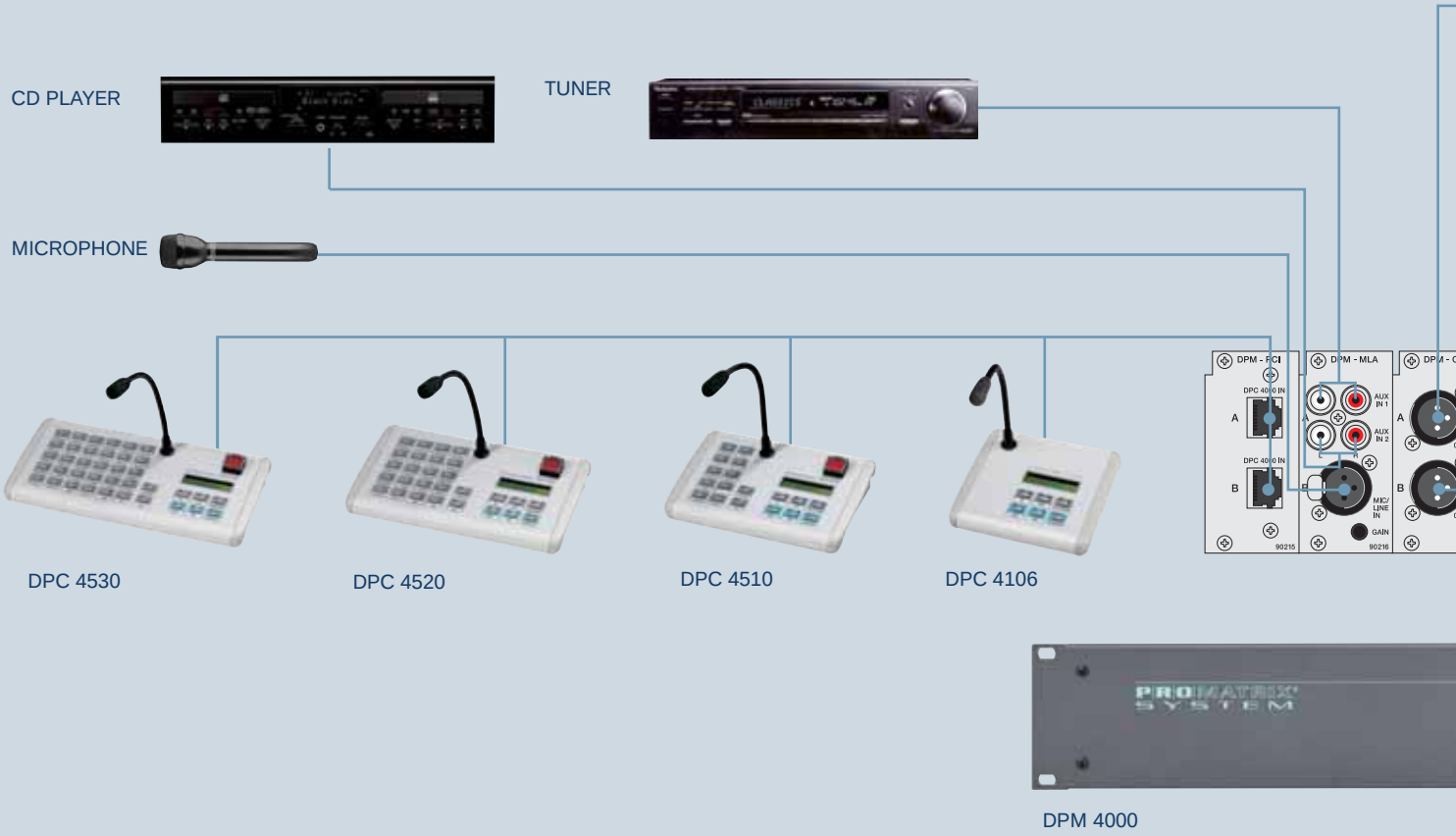
These two models available are:

- DPP 4004 24 V / 4 A
- DPP 4012 24 V / 12 A.

The **PROMATRIX®** Control System **DCS 400** family of modules has been engineered to create complete system racks embracing all control functions:

- DCS 401, DCS 401R Control Module
- DCS 801R Control Module
- DCS 408, DCS 408R Relay Module 100 V
- DCS 409, DCS 409R Control / Audio Relay Module
- DCS 412, DCS 412R Logic Input Module
- DCS 416, DCS 416R Analog Input / Output Module
- DCS 420 Monitoring Module
- DCS 405R Extension Module
- DCS 406R Shielding Module
- DCS 407R Audio Relay Module
- DCS 421R Emergency Control Module
- DCS 422R Audio Input Switching
- DCS 423R 100 V Relay Switch
- DCS ANS Automatic Volume Control.

System Description PROMATRIX® System **DPM 4000**



The digital paging system **DPM 4000** for ELA and ProSound comprises five major groups of devices:

- Paging Manager DPM 4000
- Rack Mixer DRM 4000
- Power Amplifiers DPA 4000
- Power Amplifiers PARAMUS Contractor Line
- Paging Consoles DPC 4000

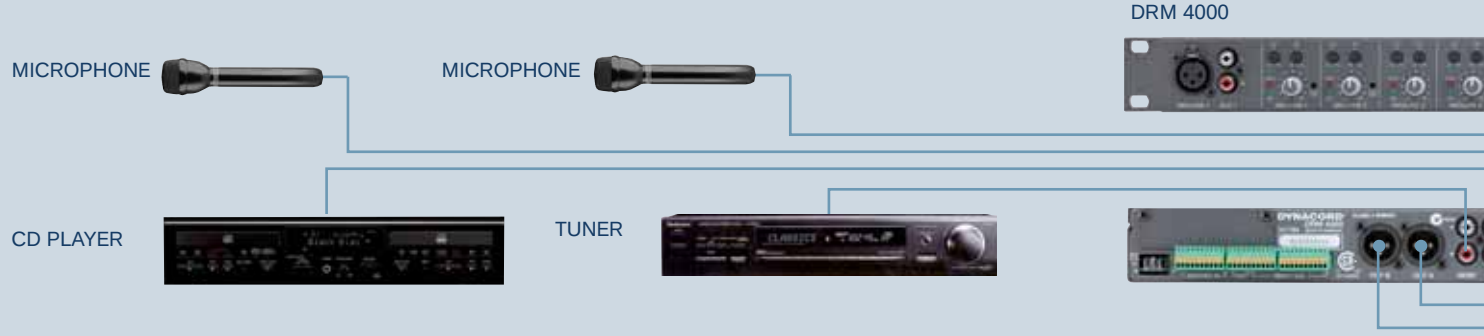
The Paging Manager **DPM 4000** represents the central processing unit of the system. Its input slots can be equipped with different analog inputs and analog outputs.

Optionally, for smaller installations the **DRM 4000** rack mixer may serve as central unit with which up to 8 audio inputs and 2 audio outputs are available.

High-quality sound reinforcement is provided by the **DPA 4000** power amplifier series, which comes in 6 different types:

- DPA 4410 4 x 100 watts
- DPA 4411 4 x 100 watts with remote control
- DPA 4120 1 x 200 watts, optional remote module
- DPA 4140 1 x 400 watts, optional remote module
- DPA 4245 2 x 450 watts
- DPA 4260 2 x 600 watts.

System Description PROMATRIX® System **DRM 4000**



DYNACORD

For simple applications (non-remote), power amplifiers of the **PARAMUS** Contractor Line can be connected to the **DPM 4000**. The following types are available:

- PCL 1240T 2 x 400 watts at 100 V
- PCL 1225T 2 x 250 watts at 100 V
- PCL 1125T 1 x 250 watts at 100 V
- PCL 1245 2 x 450 watts at 4 ohms
- PCL 1415 4 x 150 watts at 4 ohms.

The **DPC** series paging stations manage the activation of functions as well as the selection of zones for announcements:

- DPC 4106 6 function keys, LCD
- DPC 4510 8 function keys, 10 selection keys, LCD
- DPC 4520 8 function keys, 20 selection keys, LCD
- DPC 4530 8 function keys, 30 selection keys, LCD
- DPC 4550 8 function keys, 50 selection keys, LCD
- DPC 4350 50 selection keys for optional extension.

The paging stations have an integrated micro-processor, controlling and monitoring all their functions. The selection keys may be configured customer-defined, e.g., for individual circuits, for group calls as well as for internal and external control tasks or special functions, not necessarily audio-related.

IRIS-Net™

IRIS-Net™ (Intelligent Remote & Integrated Supervision) is the integrating software platform of remote-controllable DYNACORD systems and components to configure, monitor and control complete audio setups with multiple components on one central operating surface.

Already supporting Ethernet, CobraNet™, CAN-Bus, RS-232, GPIOs and USB, **IRIS-Net™** is open for future implementations. Amplifiers, loudspeakers, cable connections and interfaces are all supervised by **IRIS-Net™**. System status is queried continuously, fault conditions are recognized and reported while a protocol lists incidents by date and time. Parameters and system component settings can be saved and recalled by just a key stroke. The software provides application-based, user-designable control panels, the programming of automatic routines and configuration of components and functional groups. For several years now, hundreds of audio systems and installations have been profiting from **IRIS-Net™** control.

IRIS-Net™ has proven its efficiency in numerous high profile events such as the recent soccer World Cup in Germany (6 stadiums), the “Houston Rodeo 2005“, Kenny Chesney’s “Somewhere In The Sun“-tour and the worldwide “Live 8“.

IRIS-Net™ provides a complete set of tools for real-time control and monitoring of an audio system down to such details as signal and transducer levels, component temperature, output current and voltage, also indicating fault conditions. A useful feature is the One-Button System Check that supplies the user with a detailed overview of the entire system’s operational status in less than a minute.

The core of **IRIS-Net™** is based on a drag-and-drop surface which is customizable with a GUI element library of faders, LEDs, meters, buttons and displays. The function and behavior of these are also customizable. In addition to the on-board control elements, custom graphics and text boxes allow a programmer to develop an effective control surface that is easy to operate, regardless of the user’s technical knowledge.

Implementation of GUI layers provides additional customization and system security. Up to 32 layers can be created within an **IRIS-Net™** project to supply a variety of control and monitoring options for multiple users, each with a unique password and access to their specific layers only. This allows the programmer to create a control surface that is specific to the needs of any, and all, operators of the system.

For example, the system administrator has access to system configuration and all DSP functions, while other users may access their individual, password-protected layers only permitting preset recall but preventing them from changing critical details such as crossovers and limiters.

IRIS-Net™ is an open architecture platform for current and future products and systems. New products are added to the **IRIS-Net™** shell via .DLL files which are integrated with the **IRIS-Net™** core.

The range of **IRIS-Net™**-controllable products by Electro-Voice, DYNACORD, Klark Teknik and Midas will be expanded continuously.

Moreover, **IRIS-Net™** is designed to be used by a variety of third party hardware to control and monitor any type of product or subsystem needed in a typical audio system.

IRIS-Net™ is able to run an impedance sweep of all components connected to an amplifier, including connectors, cable, crossover networks and transducer and then store a reference measurement of the system as it exists, in a given configuration and environment. This reference can be exported to an external control PC for future usage while user-definable tolerances can be applied to customize system supervision for specific applications. The software compares the reference to a real-time measurement, alerting the operator when tolerances are exceeded.

Further **IRIS-Net™** advantages are that the comprehensive control and monitoring functions reduce rack installation and system setup times.
The One-Button System Check immediately indicates faulty connections and components, even predicting possible driver failure – worldwide a unique feature!

In addition, **IRIS-Net™** permits the recall of presets optimized for DYNACORD loudspeakers providing acoustic excellence straight from system power-up.
During measuring, the system is matched to the room acoustics via the necessary filters and DSP blocks in real time, further optimizing an already outstanding performance.

All this time-saving significantly reduces setup cost while the comprehensive, complex monitoring functions of **IRIS-Net™** provide maximum system safety with a fully customizable GUI.

The following application examples illustrate the impressive versatility of **IRIS-Net™**.

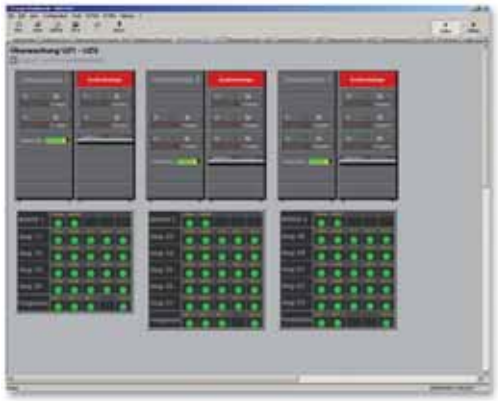
Stadium, Arena, Multipurpose Facility

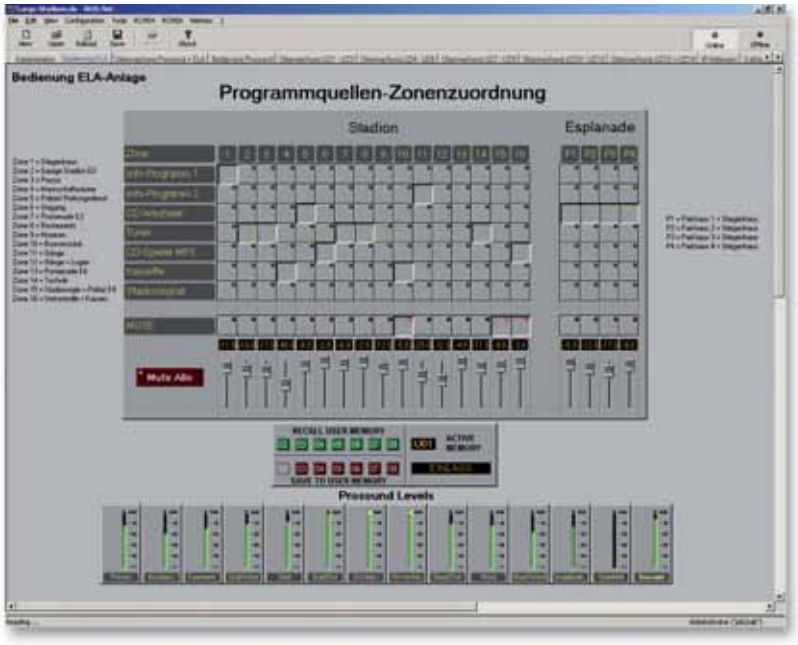
The user interfaces configured in **IRIS-Net™** provide system control matched to both, the event as well as the audience.

Galleries and stadium sectors can be switched on and off individually with independent volume levels. For each amplifier rack and loudspeaker cluster, a green status LED exists. A change to red requires a few mouse clicks to query all system parameters for analysis, and the cause is detailed in seconds only.

In the example shown (World Cup stadium), **IRIS-Net™** is used to assign various program sources in a matrix function, the **DYNACORD System** providing a single operating surface for both the paging and sound reinforcement systems.

DYNACORD is the first and currently only manufacturer worldwide to offer this combination meeting EN 60849 standards, due to the uniqueness of the **PROMATRIX® System**.





Yacht, Ferry, Cruise Liner

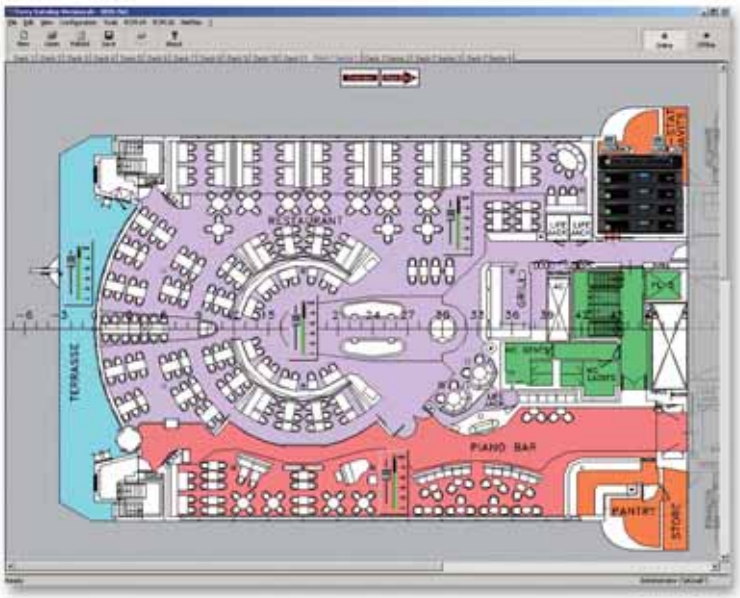
For decades, DYNACORD has been the equipment of choice on countless yachts, ferries and cruise liners.

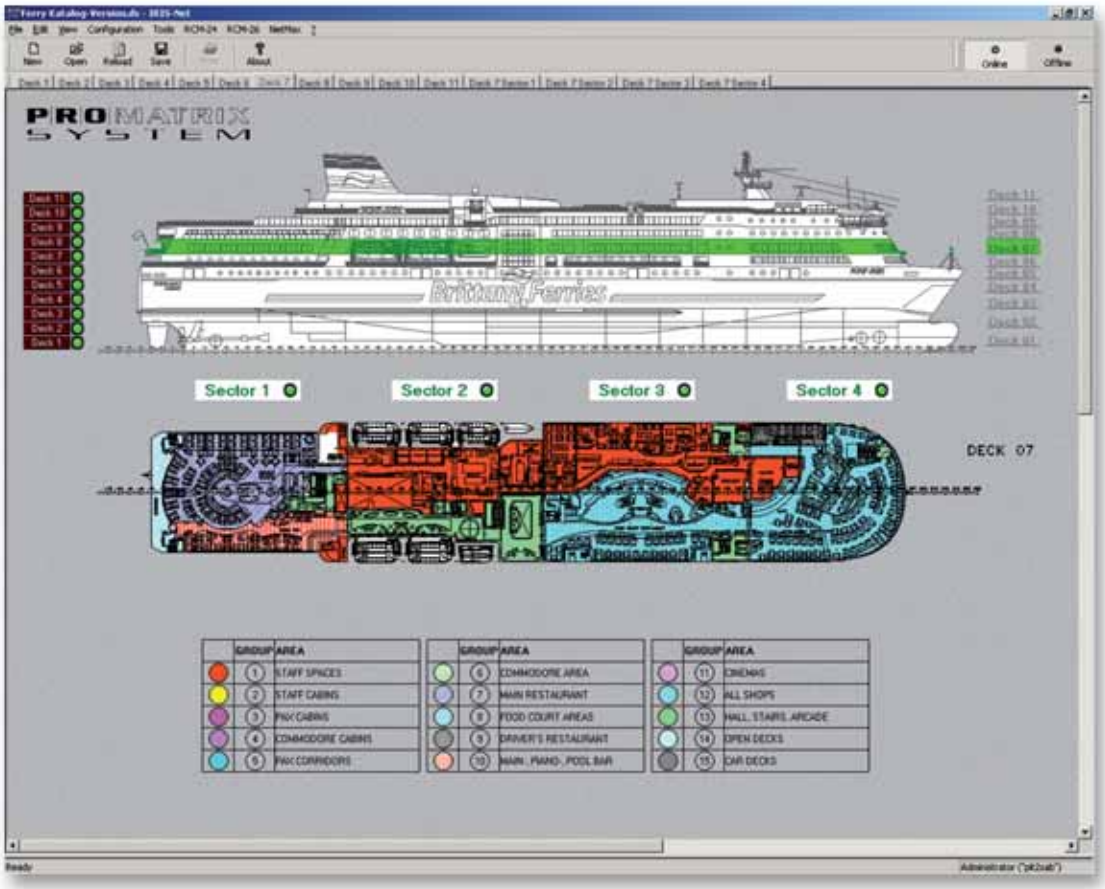
Now, the advanced control and monitoring functions of the **PROMATRIX® System** and **IRIS-Net™** are setting new standards.

Besides supervising existing audio components the **IRIS-Net™** GUI permits incorporation of third party components and systems.

The DYNACORD **PROMATRIX® System** allows the control of lighting and projection equipment, the opening and closing of doors etc. while **IRIS-Net™** provides the operator with a graphic status display.

Fault conditions are shown on the affected deck while zooming in analyzes cause and effect in detail.



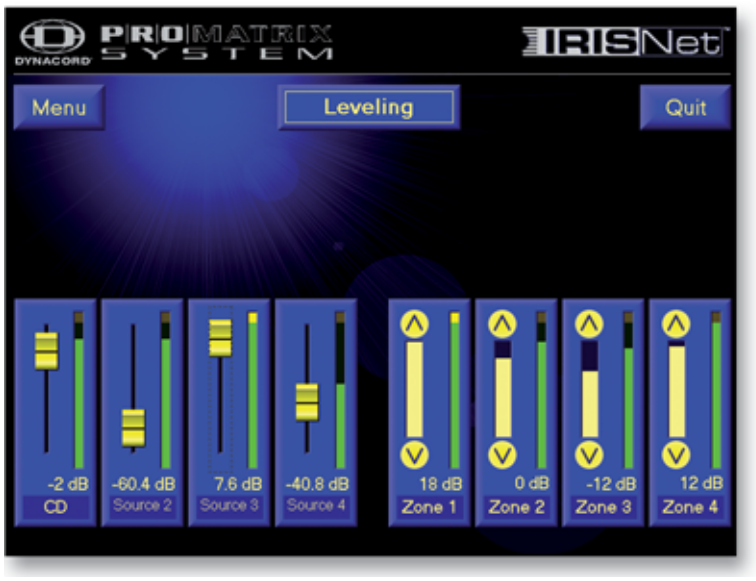


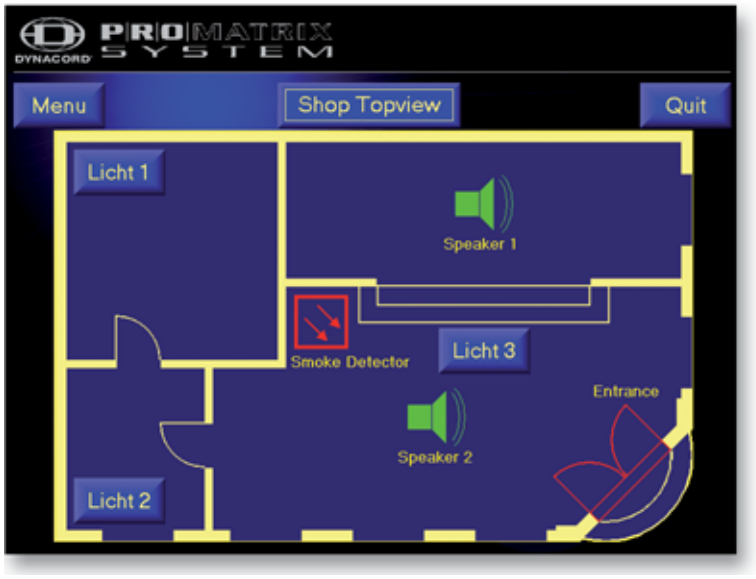
Show Room, Shopping Mall

In conjunction with **IRIS-Net™**, the **PROMATRIX® System** permits the configuration and setup of media control and management systems.

In the application shown, the touch panel transforms into a PC paging station when combined with a microphone. In the “status” layer, the logic inputs and outputs are managed, and scene presets are loaded and performed.

The “leveling“ and “routing“ layers provide adjustment of the sound reinforcement system, while individual departments, for instance, can be displayed and controlled in a “ground plan” layer – the **PROMATRIX® System** is all you need.





Department Store

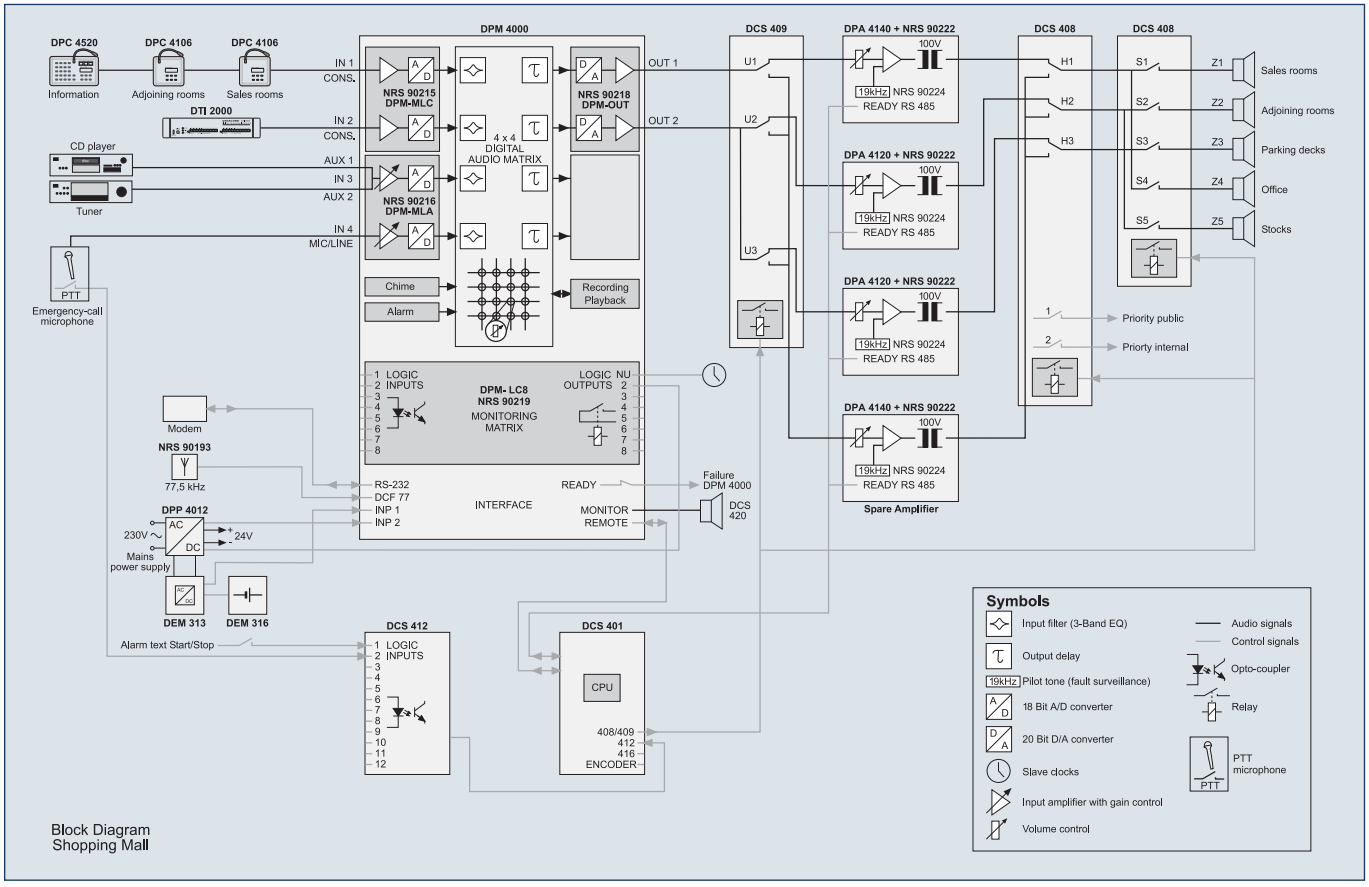
Audio systems in department stores have to fulfill a variety of requirements which can be met with the **PROMATRIX® System**. Usually, several paging stations are necessary: announcements for customer and personnel; audio sources for background music and a text reproduction for commercial inserts or other recurring messages. Additionally, announcements should be possible from each of the various telephones all over the building. The **DPM 4000** offers perfectly suitable inputs for all types of signal sources. Priorities are freely programmable, as for example lowest priority (1) for music, priority 4 for advertising texts, priority 5 for phone announcements or priority 5 for the paging stations within the sales rooms, adjoining rooms and information. The highest priorities should be used for alarm signals (9) and for the emergency call microphone (10).

Paging Consoles

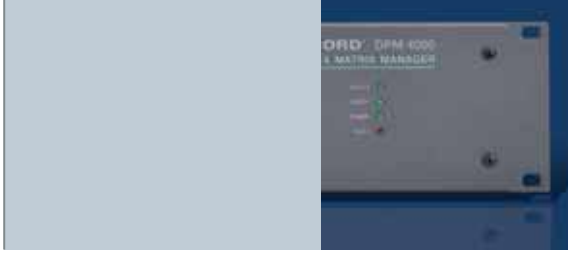
With the two DPC 4106 paging stations “adjoining rooms” and “sales rooms”, announcements are effected by using the three group-keys.
Different selection keys of the DPC 4520 paging console “information” assign the areas in which announcements are to be launched. Pressing the TALK-button activates the integrated microphone and allows making the announcement unless a signal with higher priority blocks or overrides the outgoing message. The audio source for background music can be switched with the two keys CD player “on”, tuner “on”. Pressing the “program” key chooses the level or area for background music which can then be assigned accordingly by pressing the “selection” key. Two additional keys exist (“music down”, “music up”) which serve to adjust the music’s volume level.

Safety Aspects

In emergency situations, for instance in case of a fire, the electro-acoustic system can supply encoded or open information to the present people. The signal for fire alarm is pre-set and can be activated from the paging station with keys, covered for protection against faulty operation. The acoustical alert may be retrofitted with visual indicators such as flashing beacons.
An additional microphone for the arriving fire department crew enables the officer-in-charge to launch a collective call with highest priority into all areas of the building.
The integrated system monitoring within the **PROMATRIX® System** allows reporting of the operating status and device defects, if occurring, to a superior control center. With a connected modem it is also possible to recognize errors and to change settings.

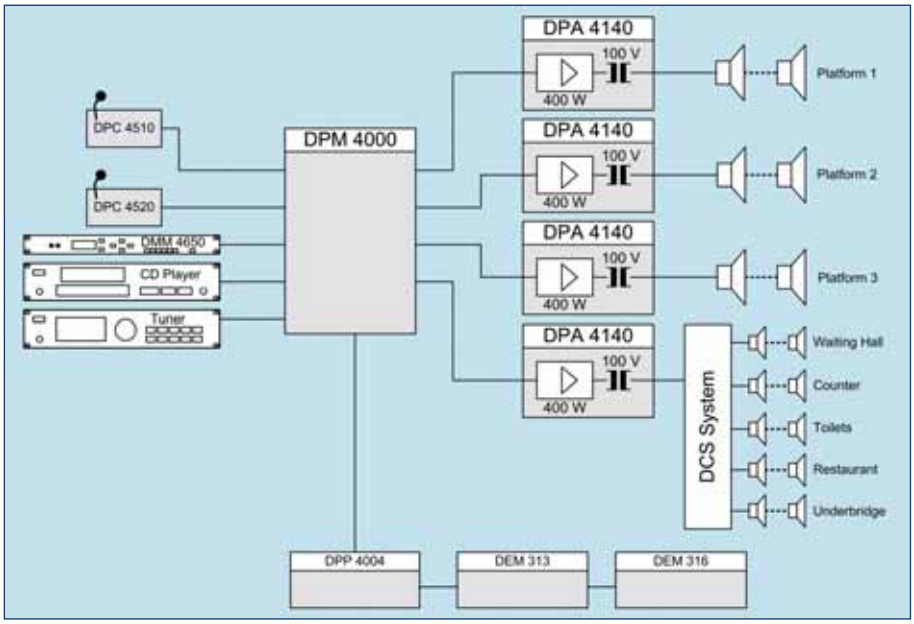


Block Diagram
Shopping Mall



Train Station

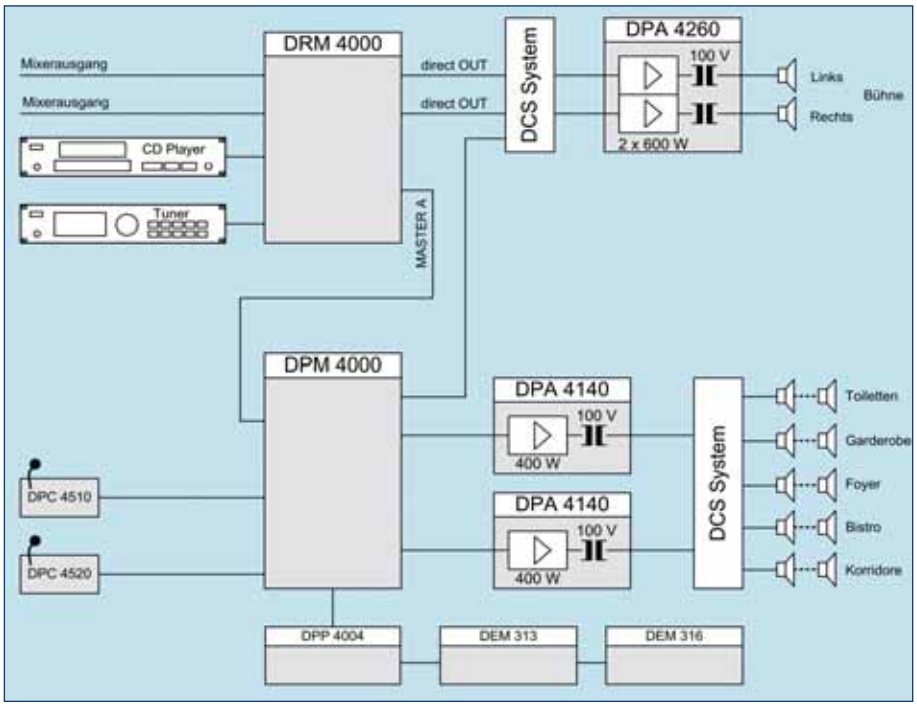
In train stations, being able to launch announcements into several areas at the same time is a major requirement. Such simultaneous announcements can be made by employing the **DPM 4000**. Announcements regarding arrival and departure of trains are possible on all platforms without any delays. The automatic “doors closing”-text before departure of a train can be pre-recorded and stored in the internal memory of the **DPM 4000** and is activated simply by pressing the button for the according train platform.



Theater

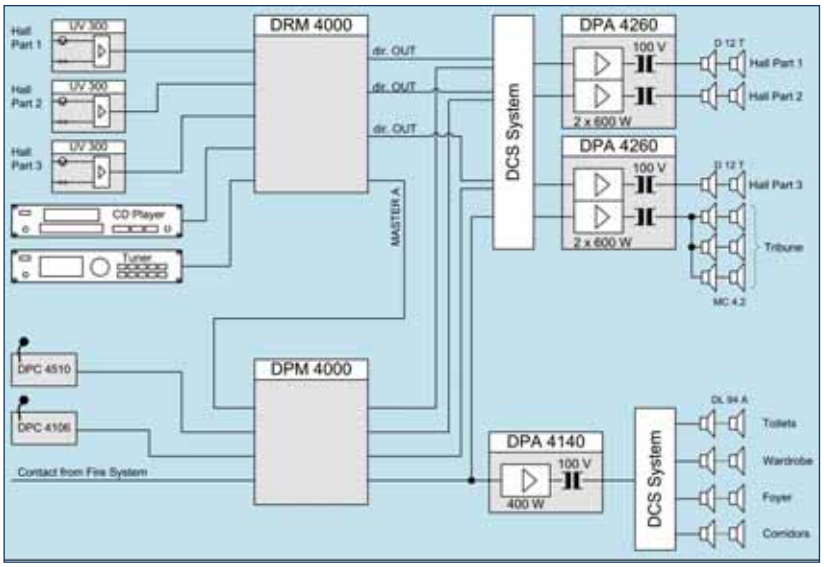
The complementary usage of the digital rack mixer **DRM** and the digital paging manager **DPM** is perfect for theater applications. A smooth flow of performances and regular theater activities is guaranteed by tapping the full potential of the **DRM 4000**.

For launching an announcement or an evacuation text from the stage loudspeakers, the audio signal is switched to the **DPM 4000** output via priority relay. The **DPM** also manages all other theater zones: Announcements can be transmitted at any time into every single area of the theater, such as the foyer, the cafetaria, the wardrobe, the toilets and the corridors. A chime signal may be preset for defined times. In order to avoid disturbances during a performance, this signal preset is temporarily deactivated simply by pressing a button. A manual chime activation is also possible, for instance to indicate beginning and/or end of an intermission between performances.



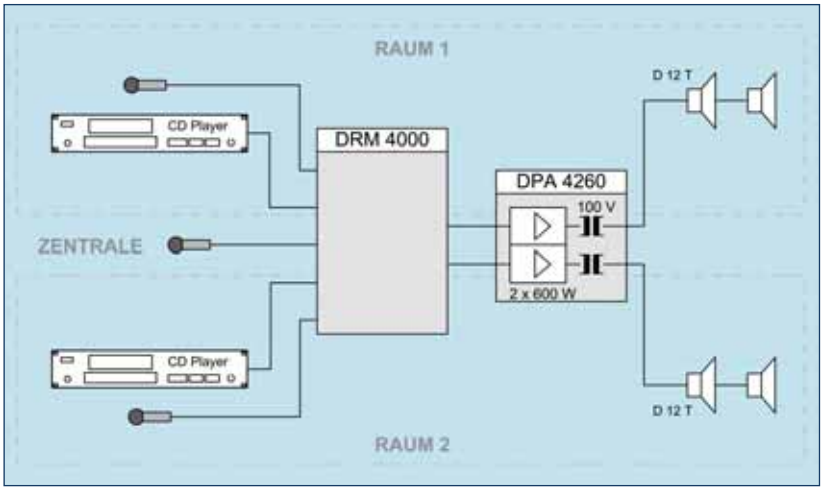
Gymnasium

A gymnasium usually has to meet many different requirements – also regarding its audio system. A combination of the **DRM 4000** Rack Mixer and the **DPM 4000** Paging Manager provides a large range of configuration possibilities. Next to the three-piece main hall, this application example also considers the adjoining rooms.
Each of the three sectors of the main hall holds an insert point for local audio signals, e.g. for music during school sports classes. For central announcements, the paging station is assigned a higher priority over the local audio signals.
In case of necessary evacuation, the central fire alarm system transmits the information to the **DPM 4000**, thus activating the alarm or alarm text.



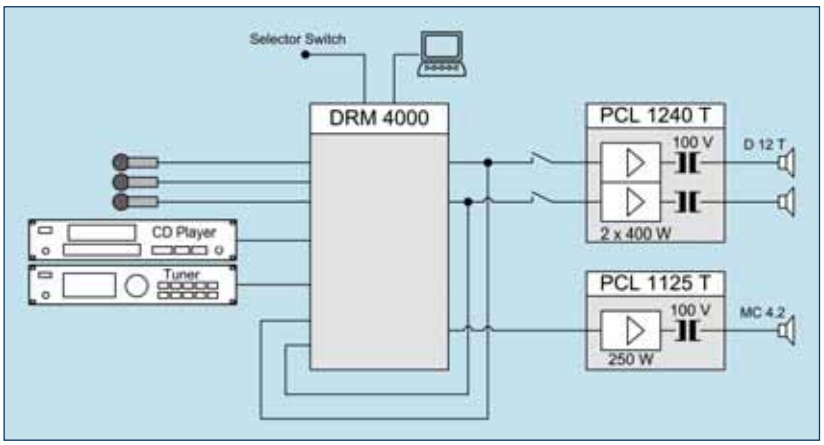
Fitness Club

This example applies to an average fitness club consisting of two rooms and one central area from which announcements are to be launched. For such cases, the **DRM 4000** represents the perfect solution as two of its microphone inputs provide a ducking function. Activating the according microphone results in an immediate reducing of the music's volume. At the end of the instructions, the music volume will automatically be readjusted to its former level.
With additional presets, announcements from the central area into either one room only or into both rooms at the same time are also possible.



Show Room

The **DRM 4000** Rack Mixer is especially suited for assuming the audio part in audio-visual performances. For this purpose, both outputs are employed as right / left signals. In order to also supply all-round ceiling sound reinforcement, the right / left signal is fed into one of the inputs, mixed there and transmitted over the direct output to the according amplifier. Via selection key, up to 8 different presets can be activated, each configurable within the **DRM** via PC.



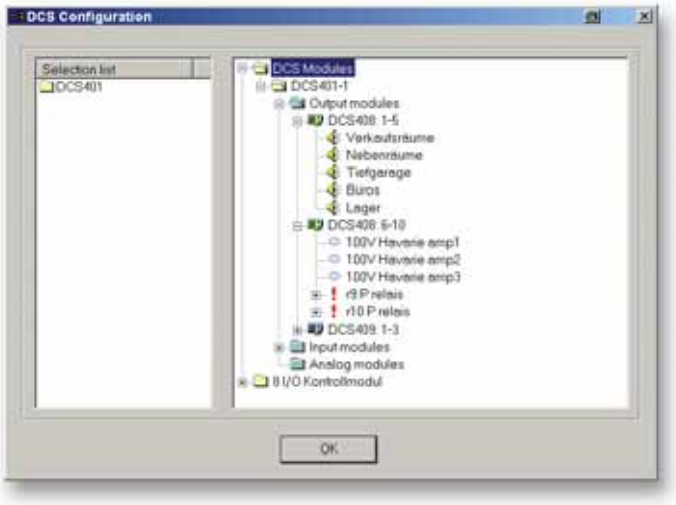
DCS 400 System

The **DCS 400 System** represents a specialty within the DYNACORD **PROMATRIX® System**. It is suited for the integration of multiple additional features.

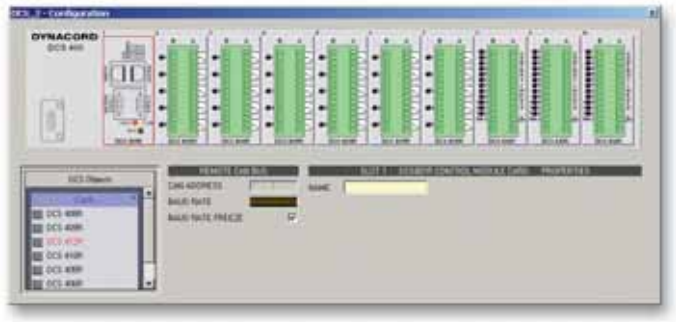
The **DPM 4000** controls the separate modules via the **DCS 401** or the **DCS 401R** (RS-485 bus connection). With several of the examples described in the following, control is also possible from the **P 64** via the **DCS 801R** (CAN bus connection).

In the most frequent application type the **DCS 408 / DCS 408R** modules serve for line selection. For that purpose, a module is connected between amplifier and line, and the integrated relay allows the launching of announcements into assigned zones.

A further common form of application employs the **DCS 409 / DCS 409R** modules for the transmission of logic information to other systems. This can be accomplished either by means of a potential-free contact (normally closed and normally open contact available) or via an electric voltage, usually 24 V DC. The described functions provide the additional possibility of controlling external devices such as overhead projectors, light switches or shades. **DCS 409 / DCS 409R** modules may also be used for the switching of line audio signals.



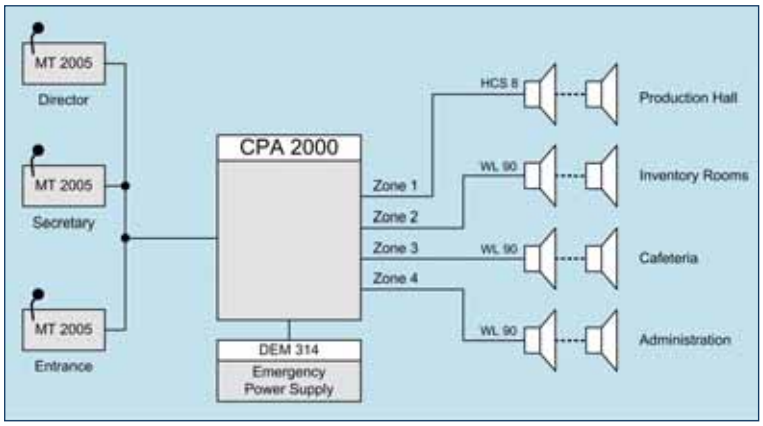
The **DCS 412 / DCS 412R** modules are designed for receiving logic information. Options are to detect either a potential-free contact or an electric current.
If the transmission or reading out of exact analog voltage values between 0 V and 10 V is required, the **DCS 416 / DCS 416R** is the module of choice. It provides control of external devices as, for example, dimmer switches. The analog read-out function may also serve as volume control. The **DCS 416 / DCS 416R** modules are also ideal for line monitoring of a connection to external systems such as the fire alarm system.



All contact outputs (**DCS 408, DCS 409**), contact inputs (**DCS 412**) and analog in- or outputs (**DCS 416**) are freely programmable under **IRIS-Net™** (**P 64**) or the **PROMATRIX®** Designer System Software (**DPM 4000**).

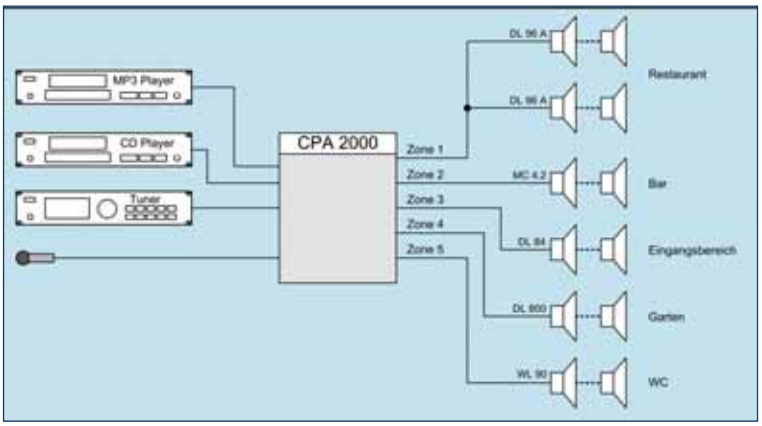
Industrial Plant

The first example regarding the **CPA 2000** shows a typical application in a medium-sized industrial plant: Four separately adjustable loudspeaker lines with reply function provide the sound reinforcement for the entire site. Production, storage, administration, cafeteria – every single employee or worker can be reached. Paging stations are located wherever the paging of an employee is required: at the entrance, in the secretary's and / or in the headmaster's office. Recurring text messages can be pre-recorded with an optional digital recorder and played back at the push of the according button. Due to the emergency power supply (24 V battery), announcements are possible even in case of mains power failure.



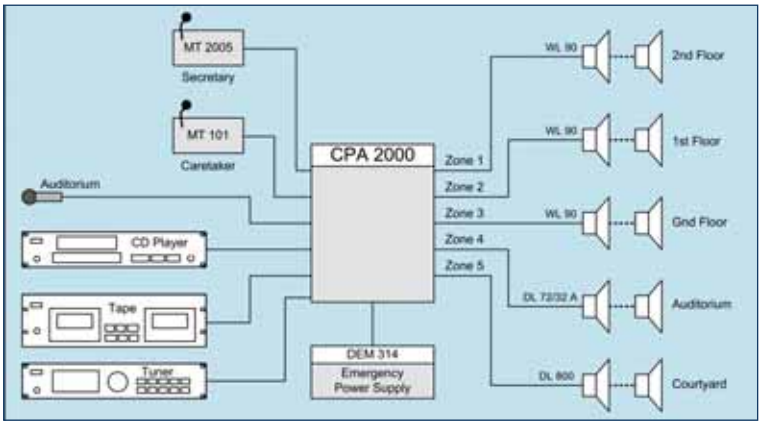
Restaurant

Frequently, a simple hi-fi system is used for sound reinforcement within restaurants – often with unsatisfactory results: The different sections of the restaurant are not separately controllable.
The following application example emphasizes the **CPA 2000**'s musical abilities. The arriving guest is welcomed with attenuated background music in the entrance area. Within the restaurant itself, a second loudspeaker line provides pleasant background music at slightly higher volume.
In the bar section and the garden, the increased ambient noise level demands a higher music volume level. This installation even considers the toilet area.
Up to three different audio sources can be connected; a microphone with programmable priority switch is available for urgent announcements.



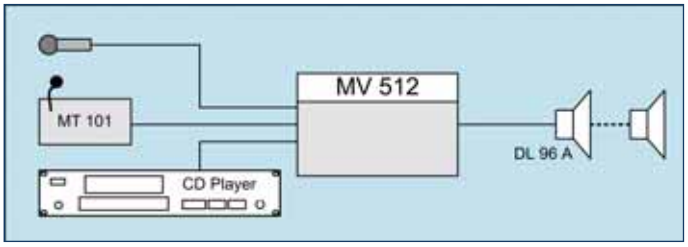
School

The third example impressively demonstrates the versatility of the **CPA 2000**. This compact power amplifier offers the entire range of possible sound reinforcement tasks within a school:
Next to providing the safety-relevant features emergency power supply, chime and alarm unit as well as a digital voice recorder, the complete system is controlled by an additional timer.
The five individually controllable loudspeaker lines cover each and every section of the school: the class rooms, the auditorium, the gymnasiums and the recreational areas.
General announcements are launched from the main microphone terminal in the secretary's office. A pole-mounted microphone is installed in the auditorium and a regular microphone terminal with priority switch in the care taker's office.



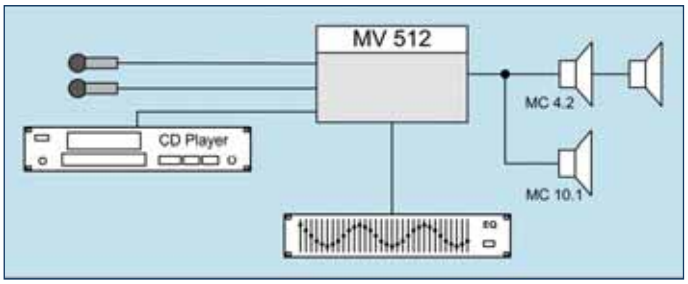
Boutique

To fulfill the usual audio requirements within a boutique or store, the **MV 500** mixing amplifier is an excellent choice. Music can be selected from various audio sources, their volume level each individually controllable. Announcements are launched from the paging station with integrated attenuation feature: During an announcement, the music is switched off and then on again as the announcement ends. Additional microphones in combination with music in mixed operating mode also allow for presentations and performances without any extra effort.



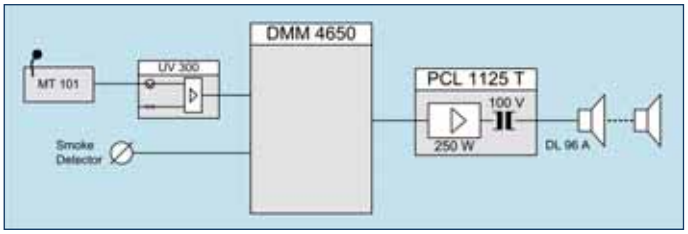
Bar

Within locations like bars or pubs, major requirement for an audio system is to supply optimized background music: on one hand, not too loud in order to not prevent conversation among the guests; on the other hand, loud enough to ensure active listening to the music, if so desired. The compact mixing amplifier **MV 500** provides the perfect solution. Next to background music, also speech and smaller live-music events can be transmitted by making use of the **MV 500** microphone inputs. The looped-in equalizer allows for individual adaptation of the sound to the given room settings as well as to individual listening preferences. In mixed operating mode, even a Karaoke-system can be established.



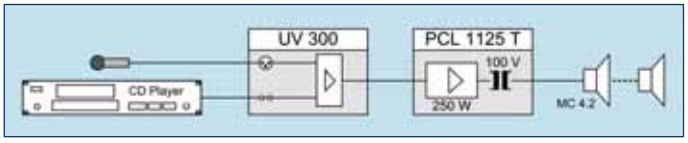
Workshop

In a workshop, audio-wise, announcements should be possible as well as additionally the activation of an alarm via an inbuilt smoke detector.
A smaller installation, which meets these requirements, can be accomplished with the **DMM 4650** Message Manager. The **DMM** offers a choice of using its preset alarms or generating a new alarm signal, respectively a combination of alarm signal and text. In case of a fire, the alert, having highest priority, is automatically activated and would also end or interrupt any announcement running at that time.



Aerobics Studio

In medium sized rooms where music in combination with announcements should be evenly distributed, the setting of the **UV 300** universal pre-amplifier together with an amplifier and high quality ceiling loudspeakers, e.g. of the DYNACORD MC series, offers the ideal solution. Volume of music input and microphone input are separately adjustable; also, smaller sound corrections can be carried out in both channels. The operating optionally takes place in mixed mode or in “damping mode”. When in priority mode, the music volume is attenuated during an announcement and boosted again afterwards.



P 64

The **P 64** Digital Audio Matrix Manager is a modular, networkable and freely configurable audio system for complete solutions.

The **P 64** integrates the components between audio sources and amplifiers as DSP modules. System configuration, operation and supervision and the DSP modules are managed by the IRIS-Net™ platform (Intelligent Remote & Integrated Supervision).

The **P 64** serves as central unit of a **DYNACORD** system providing up to 32 audio channels, mixing and matrix functions, signal processing and additional control and monitoring functions. Multiple **P 64s** can be linked via Ethernet, creating a large decentralized audio system.

The **Digital Audio System** also controls power amplifiers equipped with compatible remote modules and monitors the connected loudspeakers.
Major applications are professional audio installations and complex sound reinforcement systems in larger buildings where unique custom solutions are required. Innovative features and extreme flexibility make the **System** the natural choice among paging, EVAC and ProSound systems as well as audio networks and AV.

A **PROMATRIX® System** comprising a **P 64** meets every demand of a paging system. All audio connections, interfaces and processor functions are monitored permanently, and fault conditions are immediately detected. Redundant networks can be easily created due to the CobraNet™ audio data transmission standard.

Comprehensive DSP Hardware Platform

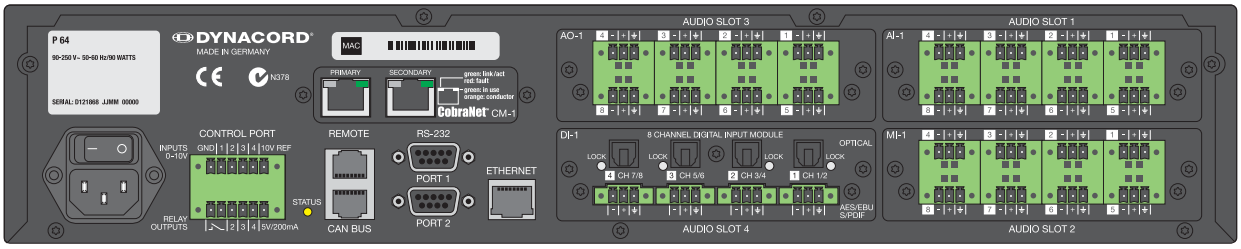
The **P 64** is an extremely flexible audio controller in a 2U housing developed for a wide variety of applications. Unrestricted combinations of I/O cards provide custom configuration of the **P 64**. With the optional CobraNet™ module, a maximum of 32 digital audio channels is available.

Superior Audio Performance

The **P 64** Matrix Manager delivers the exceptional performance typical of DYNACORD with outstanding dynamics (SNR > 115 dB). State-of-the-art A/D - D/A conversion technology and sophisticated processing algorithms ensure natural, transparent sound reproduction.

Expandable Processing Power up to 1000 MIPS per Unit

The **P 64** DSP power can be increased by an additional DSP-1 processor module – a big advantage for future system extension. For complex applications and audio signal processing, a “super-matrix“ can be created by combining multiple **P 64s** in a network.



Universal Interface to the Outside World

The **P 64** can be configured by a web server connected to **IRIS-Net™** via Ethernet, RS-232 interface or USB.
The integrated CAN bus permits communication of the **P 64** with compatible **IRIS-Net™** components. Using the GPIO network (optionally the DCS system) increases flexibility by controlling external units and systems via simple logic signals.
The GPIO network and the incorporation of external units are, of course, easily visualized on the **IRIS-Net™** GUI.

Beyond Audio Processing

The combination of **DPM 4000** and **P 64** allows setting up large life safety systems (e.g. in airports, subways, stadiums etc.).
The mixed application combining paging and sound reinforcement in a single **IRIS-Net™** system interface meets the EN-60849 standard and is worldwide unique.

The **P 64** also includes various control and logic functions. Complex operations can be condensed to macros allowing multiple functions to be summed in a single preset scene which can be changed manually or automatically, and recalled any time.

Time and calendar control provide programming of singular and repetitive sequences; annual, monthly, weekly, daily, hourly intervals and even shorter periods are selectable.
Event control provides reaction to specific occurrences.
System conditions can be configured, and all parameters are easily changed by pressing a button or following a flow chart.

Complete System Supervision

Fault conditions of individual components and within the complete system are automatically detected, indicated on the PC screen and reported to external stations, if necessary.
In conjunction with a **DPM 4000**, incidents and fault conditions can be shown in the **DPM 4000** respectively the DPC call station display.
An internal log file records user-defined incidents with date and time to be read out and printed if required. The **P 64** also supervises **IRIS-Net™** capable amplifiers and the connected loudspeaker systems by precise impedance monitoring (“system check“).

Typical Applications

Subways, stadiums, multipurpose facilities, concert halls, hotels, yachts, cruise liners, airports, theme parks, casinos, industrial buildings, theaters, AV installations and many more.

Accessories

The range of optional accessories available for the **P 64** manager includes wall panels, touch panels, the DCS control system and more to customize your setup.

P 64 General Device Description and Important Features

P 64 Digital Audio Matrix Manager	Modular Matrix Manager incl. signal control and signal routing, system control and -monitoring
Audio	32 audio channels 4 audio slots, modular. 8-channel input- and output slots, analog or digital
Network	module slot for optional CobraNet™ interface 32 I/O audio and control
Safety / Redundancy	Internal monitoring, system surveillance, watchdog-switch, fault logic output, redundant audio networking possible
PC Configuration and Control Software	IRIS-Net™ – Intelligent Remote & Integrated Supervision: integration of P 64, remote amplifiers, peripheral control configuration, control and monitoring of complete audio network Freely programmable user control panels und access codes
Power Supply	100…240 V AC, 50 / 60 Hz
Power Consumption	90 W max. (incl. 2 x AI-1, 2 x AO-1, 1 x CM-1 Module)
Safety Class	I
Cooling	left to right, 3-level fan
Operating Temperature Range	0°C…40°C
Dimensions (w x h x d)	483 x 88.1 x 381 mm, 19” / 2 HU
Weight	P 64 (without optional modules): 7.35 kg
Frequency Response	20 Hz…20 kHz (- 0.5 dB)
Signal to Noise ratio (A-weighted)	P 64 analog In to analog Out: 115 dB
THD+N	< 0.005 %
Signal Delay	P 64 analog In to analog Out: 2.2917 ms
Crosstalk	< -110 dB @ 1 kHz

Signal Processing

Sample Rate	48 kHz internal 32 kHz – 192 kHz external
Data Format	24 Bit linear A/D und D/A conversion, 48 Bit processing
Signal Processing	2 DSPs Standard (150 MHz, 300 MIPS) 1 DSP per audio module (100 MHz, 100 MIPS)

Interfaces

Ethernet	10 / 100 MBit/s, RJ-45 (PC control)
CAN	10…500 kBit/s, 2 x RJ-45 (remote amp control)
RS-232	2 Ports, 9 pin D-Sub female (remote control)
USB	USB Type B on Front Panel (PC control)
GPIO Control Port	2 x 6-pole Euro block 4 Control Inputs (analog 0…10 V / logic control) 3 Control Outputs (Relay contact to ground) 1 Fault Output (NC Relay Contact) 3 Reference Outputs (+ 5 V / + 10 V / GND)

Analog Input Module AI-1

The **analog input module AI-1** has got 8 analog audio inputs which serve for the connection of devices with line level.
The inputs are electronically balanced.

AI-1

Specifications	AI-1
Connectors	8 x 3-pole Euro block connectors
Nominal Input Voltage	+ 6 dBu / 1.55 V
Max. Input Level	+ 21 dBu / 8.7 V
Input Impedance	20 kΩ
Common Mode Rejection	> 70 dB
A/D Conversion	24 bit, sigma-delta, 128 times oversampling
Signal-to-Noise Ratio (S/N) (A-weighted)	117 dB
THD+N	< 0.005 %
Signal Delay	1.3958 ms
Dimensions (w x h x d)	114 x 33 x 258.5 mm
Weight	200 g

Microphone Input Module MI-1

The **microphone input module MI-1** has 8 analog audio inputs which connect microphones or devices with line level.
The inputs are electronically balanced with individually switchable phantom power.

MI-1

Specifications	MI-1
Connectors	8 x 3-pole Euro block connectors
Nominal Input Voltage	+ 6 dBu / 1.55 V
Max. Input Level	line: + 39 dBu / 69 V mic: + 21 dBu / 8.7 V
Input Impedance	line: 8 kΩ mic: 2 kΩ
Common Mode Rejection	line: > 60 dB (1 kHz) mic: > 75 dB (1 kHz)
Phantom Feed	+ 48 V / 10 mA, switchable per channel
A/D Conversion	24 bit, sigma-delta, 128 times oversampling
Signal-to-Noise Ratio (S/N)	(A-weighted) 118 dB
THD+N	< 0.005 %
Signal Delay	1.3958 ms
Dimensions (w x h x d)	114 x 33 x 258.5 mm
Weight	250 g

Analog Output Module AO-1

The **analog output module AO-1** has eight analog outputs which are electronically balanced and provide line levels with max. + 6 dBu. The module allows connection of amplifiers or other devices with line level input.

AO-1

Specifications	AO-1
Connectors	8 x 3-pole Euro block connectors
Nominal Output Level	+ 6 dBu / 1.55 V
Max. Output level	+ 21 dBu / 8.7 V
Output Impedance	100 Ω
Min. Load impedance	600 Ω
D/A Conversion	24 bit, sigma-delta, 128 times oversampling
Signal-to-Noise Ratio (S/N) (A-weighted)	118 dB
THD+N	< 0.005 %
Signal Delay	0.646 ms
Dimensions (w x h x d)	114 x 33 x 258.5 mm
Weight	260 g

Digital Input Module DI-1

The **digital input module DI-1** has 8 digital audio inputs which may be AES / EBU, S / PDIF or optical format. Sample rate converters for 32 to 192 kHz operation are provided.

DI-1

Specifications	DI-1
Connectors	4 x 3-pole Euro block connectors 4 x Toslink™ optical connections
Sample Rate Converter (SRC)	high end sample rate converter per channel 32 -192 kHz input to 48 kHz output
Input Impedance	AES / EBU: 110 Ω; S / PDIF: 75 Ω
Signal-to-Noise Ratio (S/N)	128 dB
THD+N	< 0.0001 %
Data Format	24 bit linear PCM inputs, 48 bit processing
Signal Delay	low group delay mode: 2.355 ms @ 48 kHz input / 1.588 ms @ 96 kHz High group delay mode: 3.022 ms @ 48 kHz input / 1.922 ms @ 96 kHz
Dimensions (w x h x d)	114 x 33 x 258.5 mm
Weight	200 g

CobraNet™ Module CM-1

The **CobraNet™ module CM-1** is a compact interface module for connecting several **P 64** devices within one network, allowing the simultaneous transmission of up to 32 digital audio input signals and up to 32 digital audio output signals. The module's two CobraNet™ ports (primary, secondary) may be used for network redundancy.

DSP-1 Extension Module

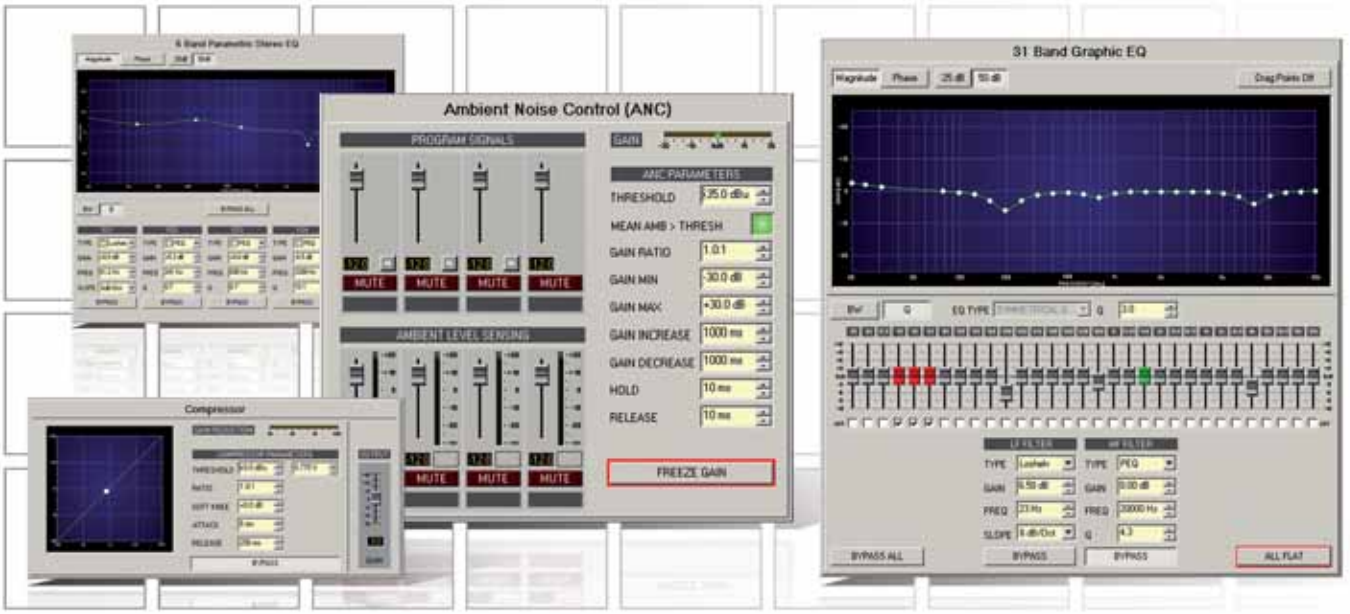
Should the computing power of the **P 64** not be sufficient, it can be increased by 300 MIPS with the **DSP extension module DSP-1**.

CM-1

Specifications	CM-1
Ethernet Connectors (primary, secondary port)	RJ-45, IEEE 802.3u Standard
Sample Rate	48 kHz
Data Format	16 / 20 / 24 Bit
Latency	1.33 / 2.66 / 5.33 ms selectable
Dimensions (w x h x d)	89 x 27 x 92 mm
Weight	75 g

DSP-1

Specifications	DSP-1
Signal Processing, computing power	300 MIPS
Sample Rate	48 kHz
Data Format	48 Bit processing
Signal Delay	0.125 ms
Dimensions (w x h x d)	110 x 20 x 82.5 mm
Weight	45 g



Crossovers

The **crossover** blocks are available in mono and in stereo versions with between one and five ways. The crossover has got one high pass and one low pass for each way, including the parameters type, frequency, polarity as well as level and mute.

Delay

Delay blocks exist in mono as well as in stereo versions with 10, 100, 500 or 2000 ms maximum delay. The setting of distance and ambient temperature is possible.

Dynamics

The **compressors** (mono or stereo) have adjustable threshold values, attack and release times, compression rates, and partially also soft knee characteristics, output levels and side chain inputs.

The **limiter** (mono or stereo) has tunable threshold values as well as attack and release times.

The **ducker** (mono or stereo) has adjustable threshold values, ducking levels, attack, hold and release times.

The **expander** block contains the parameters threshold, ratio, attack and release times.

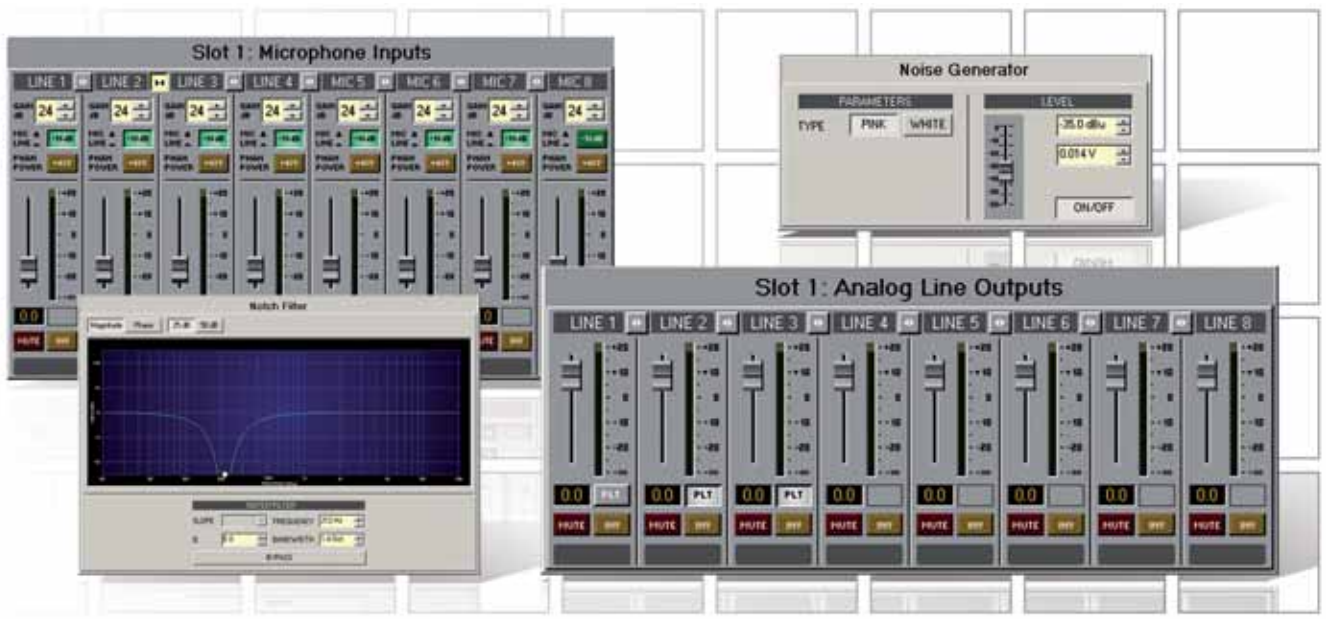
The **gate** block includes the parameters threshold, attack, hold and release times.

The **ambient noise control** block automatically changes the level of up to four BGM-signals (background music) according to the currently prevailing surrounding or background noise (ambient noise level).

Equalizers

Graphical equalizers are available as mono or as stereo versions with 10, 15 or 31 bands. Additionally, there are two parametric equalizers available.

Parametric equalizers exist in mono and stereo versions with between one and 32 bands. Filter types (PEQ, low/high shelving, low/high all pass) are freely selectable with the parameters gain, frequency, quality/range or slope for each band.



Filters

FIR filters of the type low pass, high pass or band pass all have the parameters filter order, low cut, high cut, and slope.

Low pass and **high pass** blocks in mono or in stereo have the parameters frequency, slope and quality.

Band pass blocks in mono or stereo are available with the parameters frequency and quality/range.

Low shelving blocks in mono or stereo have the parameters frequency, slope and gain.

High shelving blocks in mono or stereo have the parameters frequency, slope and gain.

Notch blocks in mono or stereo have the parameters frequency and quality/range.

Tone control blocks in mono or stereo have gain control for bass, mid, treble.

Generators

Tone generators serve for producing a constant sinus signal or a sinus sweep.

Noise generators produce white/pink noise.

Inputs / Outputs

The **Analog Input block (AI-1**) has 8 analog inputs. Each input possesses a fader, a VU-meter as well as mute and invert buttons. For audio monitoring purposes, each input is equipped with a pilot tone detector.

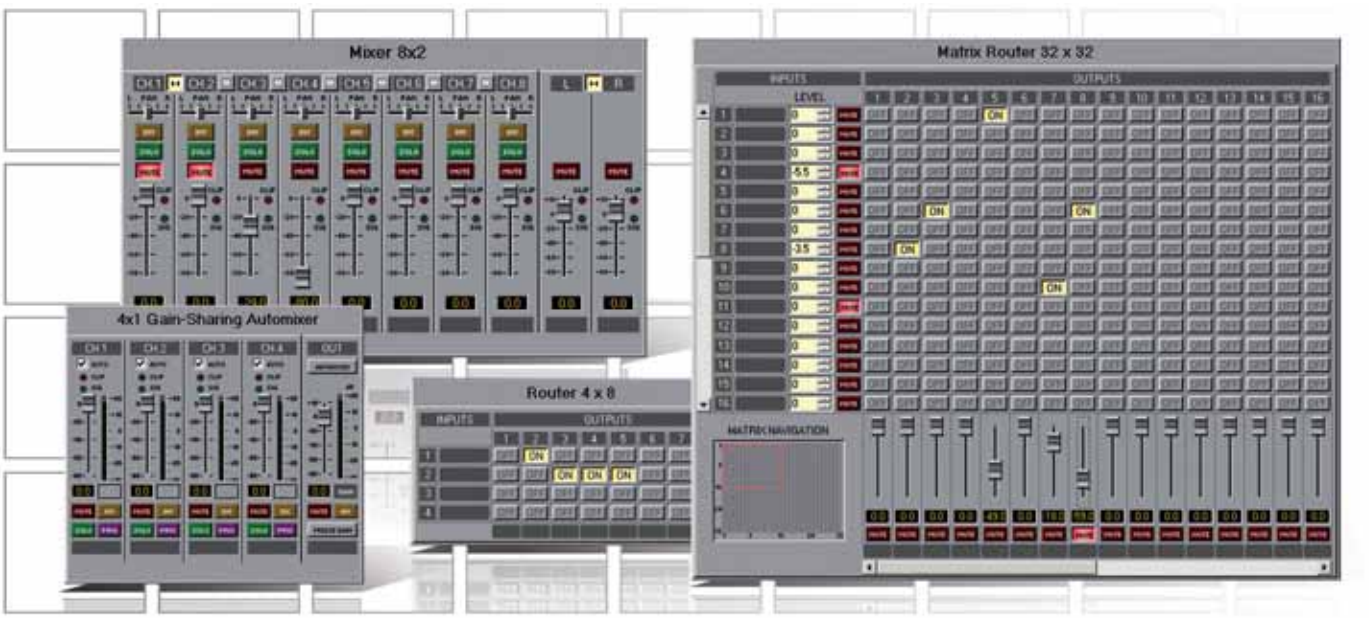
The **Analog Output block (AO-1**) has 8 analog outputs. Each output has a fader, a VU-meter as well as mute and invert buttons. For audio monitoring purposes, each output is equipped with a pilot tone generator.

The **Digital Input block (DI-1)** has 8 analog input channels. Each of the four receivers can be switched between AES/EBU, S/PDIF and OPTICAL. Additionally, each receiver has a lock- and an error-LED as well as a display of the sampling rate. Each channel has a fader, a VU-meter as well as mute and invert buttons.

The **Microphone Input block (MI-1)** has 8 analog inputs with microphone sensitivity; each input can be switched between microphone and line level. All inputs have a fader, a VU-meter, gain select, mute and invert buttons. Additionally, for each input a phantom feed can be activated.

The CobraNet Input block (CM-1) has 8 analog input channels. A CobraNet bundle can be selected either by its number or an assigned name. Each channel has status-LEDs, a word length indicator and a mute button.

The CobraNet Output block (CM-1) has 8 analog output channels. A CobraNet bundle can be selected by its number or its assigned name.



Loudspeaker Controller

Loudspeaker Controller blocks exist in mono or stereo versions with between 1 and 5 ways. Each way contains a 6-band PEQ, a frequency switch with polarity, alignment delay and level control as well as a compressor/limiter. Factory-delivered speaker settings can be imported into each loudspeaker controller way, and various parameter settings can be exported as speaker settings.

Router, Mixers, Matrices

The **Matrix Mixers** have 4, 8, 16, 24 or 32 inputs and 4, 8, 16, 24 or 32 outputs.
Each in- or output and every matrix cross point has an individual level setter. As many of the existing inputs as desired may be mixed on one or several of the outputs.

The **Mono** or **Stereo Mixers** have 2, 4, 8, 16, 24 or 32 inputs and 1 or 2 output(s). Each input contains a fader, signal/clipping LEDs as well as mute, solo and invert buttons.
The output channel holds a fader, signal/clipping LEDs and a mute button.

The **Auto Mixers** have 2, 4, 6, 8 or 12 inputs and 1 automatically mixed output. Each input has a fader, signal/clipping LEDs, mute, solo and invert buttons. In each input, de-/activation of the auto function can be selected separately.
The output channel has a fader, an invert and a mute button.

The **Priority Matrix** exists with either 4, 8, 16, 24 or 32 inputs and 4, 8, 16, 24 or 32 outputs.
For each input, a priority can be determined. The outputs and matrix cross points each have their own level setter.

The **Routing Matrix** has 4, 8, 16, 24 or 32 inputs and 4, 8, 16, 24 or 32 outputs. Each input and each output has its own level setter. Each input can be switched to one or more outputs. However, only one input at the time can be activated per output.

Router blocks can have 1, 2, 4, 8 or 16 inputs and 1, 2, 4, 8 or 16 outputs. Each output can be fed by exactly one input source. One input, though, can be routed to various outputs.

TPI-8 and TPI-12

The **TPI** touch panels are operating and display units for convenient control and monitoring of DYNACORD **PROMATRIX® Systems** with **P 64** and **DPM 4000**.

Two models are available with 8.4” (**TPI-8**) or 12.1” screens (**TPI-12**) which are connected via Ethernet and configured by **IRIS-Net™**.

Low installation depth facilitates both wall mounting and integration into racks and operating consoles. Mounting accessories and a 24 V DC power supply are separately available.

Additional TPI features:

- completely customizable GUI – functional and graphic configuration for all applications via **IRIS-Net™**
- extended life and noise-free operation – no fan or hard disk
- proven server technology – Win XP Embedded™ operating system, industrial quality “Made in Germany”.

TPI-8 und TPI-12

Specifications	TPI-8	TPI-12
Supply Voltage	24 V DC +/- 20%	24 V DC +/- 20%
Supply Current	0.7 A	0.9 A
Display Size	8.4“	12.1“
Max. Resolution	800 x 600	800 x 600
Brightness	300 cd/m2	300 cd/m2
Touch Screen	Resistive analog	Resistive analog
Operating System	Windows XP Embedded	Windows XP Embedded
Temperature Range	0 °C … 40 °C	0 °C … 40 °C
Dimensions (w x h x d)	307 x 267 x 50.7 mm	395 x 315 x 56.2 mm
Weight	3.2 kg	5.3 kg
Accessories	WM TPI-8	WM TPI-12

PWS-4 and PWS-6

The programmable wall stations (**PWS**) are modular operation panels for DYNACORD **PROMATRIX® Systems** with **P 64**. Typical applications are volume control, source selection, preset switching and room combining.

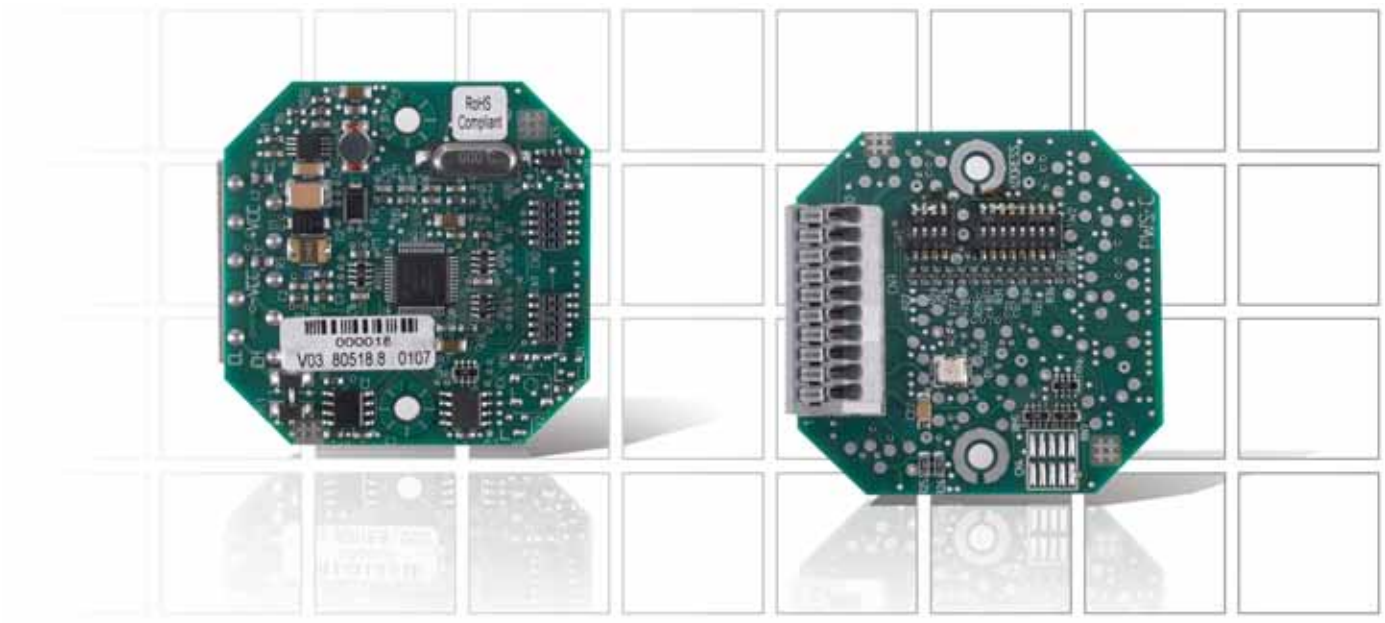
The **PWS-4** and **PWS-6** front units are designed for single, dual and triple U.S. wall boxes requiring a PWS-C CAN bus coupler. According cover panels are optionally available.

Additional features:

- A maximum of 3 operating fronts can be integrated into a wall station – easy series connection via cable (included)
- Convenient button labeling – mark-up space covered and protected against soiling
- Freely configurable via **IRIS-Net™**-keys and LEDs with user-assignable functions.

PWS-4 and PWS-6

Specifications	**PWS-4**	**PWS-6**
Supply Voltage	5 V DC	5 V DC
Supply Current	35 A	30 A
Max. Power Consumption	175 mW	150 mW
Buttons / Keys	4 with green status LED 2 up / down with LED chain (4 green LEDs)	6 with green status LED
Temperature Range	-5 °C … 40 °C	-5 °C … 40 °C
Dimensions (w x h x d)	48 x 105 x 34 mm	48 x 105 x 34 mm
Weight	80 g	80 g



PWS-C

The **PWS-C** CAN bus coupler connects the operating fronts to the CAN bus detecting the manipulation of control elements and sending information to the respective units via the CAN bus.
Information received by the CAN bus is displayed on the operating fronts.

Additional PWS-C features:

- A maximum of 3 operating fronts (PWS-4, PWS-6) can be connected – wall stations freely configurable
- Baud rate adjustable via DIP switches or software – highly flexible, protects against unintended changes
- Integrated terminating load – no external elements required
- Easy-binding post connection – dual binding posts for extension leads
- Status LED – local diagnosing possible
- 9 - 58 V DC power supply input.

PWS-C

Specifications	PWS-C
Supply Voltage	9…58 V DC
Supply Current	20 mA @ 24 V / DC
Max. Power Consumption	480 mW
Max. Line Length (CAN)	1000 m
Cable diameter	0.5 … 0.8 mm / 20 – 24 AWG
Temperature Range	-5 °C … 40 °C
Dimensions (w x h x d)	48 x 48.5 x 19 mm
Weight	15 g

DPM 4000

The digital **PROMATRIX®** Manager **DPM 4000** is a modular configured, processor-controlled multi-channel audio control and signal routing system that is meant for incorporation in a wide range of electro acoustics applications (alert systems) as well as in the field of ProSound installations. Because of its outstanding technical specifications – as there are: a dynamic range >100 dB, an excellent overall frequency response of the entire system as well as of each individual component, extensive sound shaping facilities, output delays, etc. – including the system in ProSound applications is easily achieved.

The PC-software runs under Windows™ and allows configuration of all functions and parameters.
Audio signal input modules for connecting up to 16 paging consoles, microphones, mixers, CD-players, AM/FM-tuners, cassette decks, etc. are available.
Each channel is equipped with a comfortable audio processor that provides the following filters:

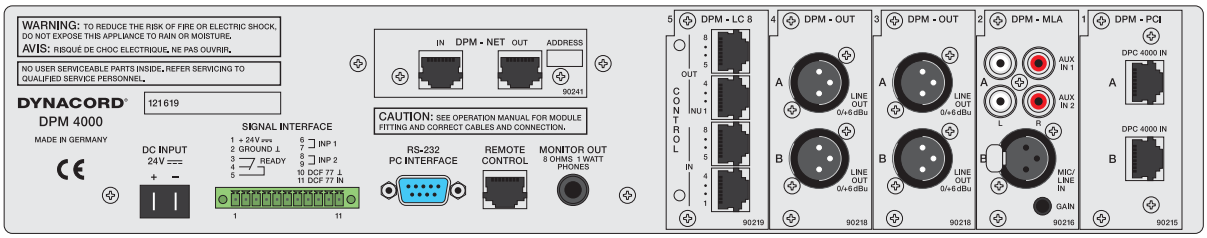
- Lo/Hi-Shelving EQ
- Lo/Hi-Cut
- Parametric Equalizer.

All changes are displayed on the screen and can be acoustically monitored in real time. Optimizing the transmission quality (e. g. linearization, intelligibility, music reproduction) and reducing feedback can be easily achieved.
An integrated floating 8 x 8 Logic Control Matrix allows launching control functions, logic operation and programmed flows via macros.

Safety Features:
The digital **PROMATRIX®** Manager monitors itself, according to IEC 60849 regulations for electro acoustic emergency alert systems. Furthermore, all connected paging stations, power amplifiers, their connection cables, and loudspeaker lines are being monitored.
An RS-485 port is employed to control output relays, LF or control relays, logic inputs and analog inputs and outputs.
The optional control and monitoring of the power amplifiers (remote control) is also performed via this terminal. As additional option, it is possible to include an automatic fault-protocol.

On customer's demand, remote maintenance and servicing is possible. Changing the system's configuration and control functions as well as obtainable software upgrades can also be performed via modem.
The optionally available line-monitoring module for remote amplifiers controls and guards the speaker cabling and the corresponding loudspeaker systems. Measuring criteria are: ground-fault according to the DIN VDE 0800 regulations, line interrupt, line fault, and impedance. Periodic test cycles can be programmed; evaluation and fault-protocol is automatically performed by the **DPM 4000**.

The **PROMATRIX®** Manager **DPM 4000** controls messages for several zones at the same time, optionally with pre-gong, via its central system processor.
The automatic attenuation of background music during messages with smooth fade-in when the message ends can be programmed.
Output delays can be set to values between 0 and 330 ms respectively between 0 and 113 meters. In case some lines are busy, a message is automatically recorded and, after the lines are open again, the message is being transmitted (option: message-stacking, available in combination with the internal message recorder).



The factory configuration includes:

- Digital 4 x 4 audio mixing matrix with volume controls in all inputs and outputs
- Internally extended matrix for signals and recording / playback
- Parametric 3-band equalizer in all 4 input channels
- 10 control inputs, 7 control outputs; floating, freely definable functions
- Link options for internal and external control inputs and outputs
- RS-232 interface for PC-connection
- RS-485 interfaces for the connection of paging consoles, power amps and the DCS 400 Control System
- Monitor bus and monitor amplifier for power amp monitoring and internal input / output monitoring
- Status-LEDs for fault notification, Power, Ready and DCF 77
- Event scheduler; 2000 individual events can be comfortably programmed
- Electronically programmable fuses for all power supply outputs
- Remote fault indication via READY-Relay
- Power Management for the entire **PROMATRIX® System**.

Additional options are:

- Delay in all 4 output channels
- Digital tone oscillator for national and international alert signals, e. g. alerts according to the DIN 33404 regulations, mail service alerts, Slow-Whoop, etc.
- Digital tone oscillator for gong signals (2, 3, and 4 chime gong), attention gong
- Pilot tone generator for internal monitoring and power amplifier monitoring purposes
- Direct digital recording and playback of messages with a length of up to approximately 6 minutes
- DCF 77 control for the main clock
- Modem-support for remote control and remote maintenance
- Interface module for **DPM 4000** networking
- System main clock, quartz-controlled, direct connection of up to 40 slave clocks
- Monitoring and protocol-support for all internal and external functions.

DPM 4000

Specifications	**DPM 4000**	
Operating Voltage	24 V DC, -10 / +30 %	
Power Consumption	12 W	
Characteristics		
Audio Inputs:	electronically balanced	
Nominal Input Level	DPC	775 mV / +0 dBu
	MIC / LINE	1.5 mV..5 V / -54..+16 dBu
	AUX	250 mV..3 V / -10..+12 dBu
Nom. Input Impedance	DPC	20 kΩ
	MIC / LINE	10 kΩ
	AUX	10 kΩ
Characteristics		
Audio Outputs:	electronically balanced	
Nominal Output Level	775 mV / 0 dBu or 1.55 V / +6 dBu	
Nom. Output Impedance	115 Ω	
Frequency Response	20 Hz .. 20 kHz ± 0.5 dB	
Distortion @ 1kHz	< 0.01 %	
Interference Voltage (A)	-97 dBu	
Monitor Characteristics:	headphones unbalanced, loudspeaker bridging operation	
Input	balanced 1.25 V / +4 dBu	
Output Power Capacity	0.5 W / 8 Ω	
Min. Load Impedance	4 Ω	
Interface Characteristics:		
Control Inputs	UiN ≤ ± 5 V = Low	
	UiN ≥ ± 10 V = High	
Control Outputs	floating relay contacts 1 A at 24 V DC	
Slave Clock Output	24 V DC, 400 mA, short-circuit-proof	
Serial Interfaces	RS-232, RS-485	
Temperature Range	+5 °C .. +40 °C	
Dimensions (w x h x d)	483 x 88.1 x 340 mm	
Installation Depth without Connectors	340 mm	
Installation Depth including Connectors	410 mm	
Weight	approx. 7 kg	
Color	anthracite	

NRS 90215 NRS 90216

DPM 4000 Modules

The **DPM 4000** allows for audio connections and system expansions by using different interface modules.
On the backside of the **DPM 4000**, there are five slots for flexible employment of the various **DPM 4000** modules.
The **DPM 4000** may be equipped with two different input modules containing two audio channels each.

The **DPM 4000** can also be equipped with two output modules with two audio channels each.
The fifth slot is designed for the 8-I/O control module.

Included in delivery are a 2-channel audio output module and the 8-I/O control module.

2-Channel Paging Console Module PCI (NRS 90215)

The 2-channel audio input module **PCI** is used for the connection of paging stations of the DPC 4000 series.

NRS 90215

Specifications	NRS 90215
Connections	2 x RJ-45 sockets
Audio Inputs	2, electronically balanced
Dimensions (w x h x d)	37.5 x 81 x 248 mm
Weight	152 g

MIC/LINE + 2-AUX Input Module MLA (NRS 90216)

The 2-channel audio input module **MLA** is made for connecting external audio sources of all types.

NRS 90216

Specifications	NRS 90216
Connections	1 x XLRF-type / 4 x RCA-type connectors
Input A	2 x AUX, unbalanced, internally summed, 1 x MIC/LINE
Phantom Power	24 V / 20 mA, switched via jumper
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	160 g

NRS 90217 NRS 90228 NRS 90234

2-Channel MIC/LINE Input Module MLI (NRS 90217)

The 2-channel input module **MLI** is made for the connection of external audio sources such as microphones, mixers, and others.

NRS 90217

Specifications	NRS 90217
Connections	2 x XLRF-type connectors
Audio Inputs	2 x electronically balanced
Phantom Power	24 V / 20 mA, switched via jumper
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	160 g

2-Channel-AUX Input Module AUX (NRS 90228)

The 2-channel **AUX** audio input module **AUX** is made for the connection of external audio sources such as CD players, tape recorders, tuners, DAT etc. and is equipped with 8 RCA-type connectors (4 x L/R).

NRS 90228

Specifications	NRS 90228
Connections	8 x RCA-type connectors
Inputs	4 x AUX, unbalanced,, internally summed
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	150 g

MIC/LINE + Paging Station Module MLC (NRS 90234)

The 2-channel audio input module **MLC** serves the connection of paging consoles of the DPC 4000 series and of external audio sources.

NRS 90234

Specifications	NRS 90234
Connections	1 x RJ-45 socket; 1 x XLRF-type connector
Input A	DPC 4000, electronically balanced
Input B	MIC/LINE, electronically balanced
Phantom Power	24 V / 20 mA, switched via jumper
Dimensions (w x h x d)	37.5 x 81 x 252 mm
Weight	165 g

NRS 90218

NRS 90219

2-Channel LINE Output Module OUT (NRS 90218)

The output module **OUT** is made for connecting power amplifiers with 0 dB or +6 dB input sensitivity.

NRS 90218

Specifications	**NRS 90218**
Connections	2 x XLRM-type connectors
Audio Outputs	2, electronically balanced
Dimensions (w x h x d)	37.5 x 81 x 247 mm
Weight	160 g

Additional extension kits for DPM 4000

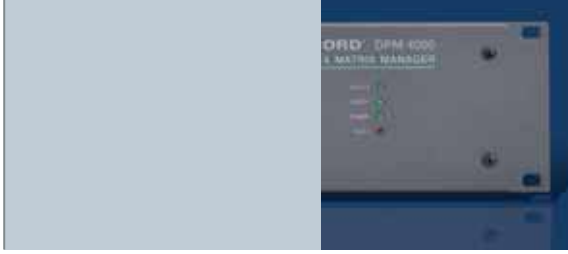
NRS 90208	input transformer for DPC inputs
NRS 90233	input transformer MIC/LINE inputs
NRS 90227	output transformer
NRS 90205	voice-message memory module
NRS 90193	radio controlled DCF 77
NRS 90241	master-slave interface for networking multiple DPM 4000
Various optional functions in the DPM 4000 are activated via software modules. These are in specific:	
SW-Message	speech recording and playback
SW-Delay	output delay
SW-Clock	software clock with slave clock control, calendar
SW-Safety	monitoring, fault protocol
SW-Signals	chime- and alarm signals
SW-line monitoring	speaker line surveillance

8-I/O Control Module LC 8 (NRS 90219)

The control module **LC 8** has got 8 potential-free control inputs and 7 potential-free outputs for logic levels (0 V, 24 V).
An additional output (NU, OUT 1) provides pole switching impulses for connecting up to 40 slave clocks.

NRS 90219

Specifications	**NRS 90219**
Connections	4 x RJ-45 sockets
Logic Inputs	8, floating via opto-coupler, bi-polar
Voltage when the input is LOW	UiN < ± 5 V
Voltage when the input is HIGH	UiN > ± 10 V
Maximum Input Voltage	UiN max = ± 31 V
Logic Outputs	7, floating via relay contacts
Slave Clock Output	pole change impulse / turning impulse
Output Voltage	24 V DC
Dimensions (w x h x d)	37.5 x 81 x 247 mm
Weight	195 g



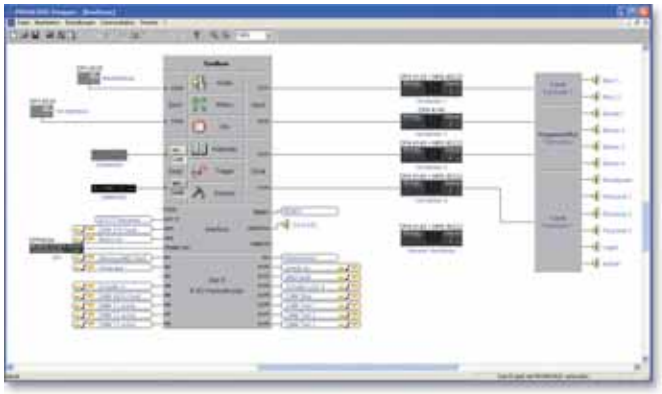
PROMATRIX® Designer

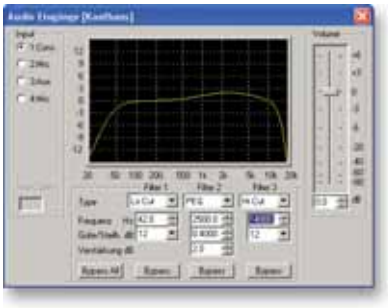
Configuration and documentation of the **PROMATRIX®** System can be accomplished most conveniently and most comfortably by using the system software interface which runs under Windows™ on any PC or notebook computer.
Altering the configuration is possible at any time without need to interfere with the system's actual set-up.
Saving and retrieving a configuration can also be done whenever desired.
A password protection feature prevents unauthorized access or unwanted setting changes as well as faulty operation.

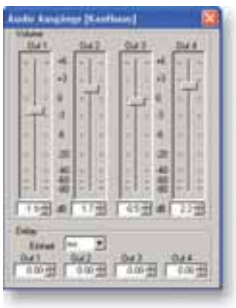
Configuring the system is possible both in on-line or off-line modus. When programmed on-line, the installed **DPM 4000** modules and all connected hardware components are automatically recognized. Parameters can be transferred and directly incorporated into the PC program.

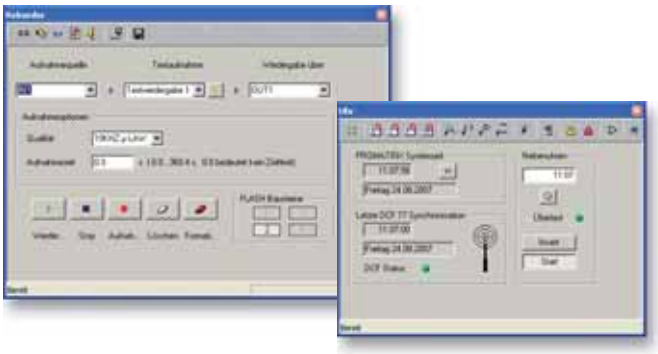
The displayed block diagram is manually editable. Parameters can be determined for all function blocks in separate windows.
The system software fulfills a logic check of the configuration which basically eliminates the chance of faulty operations.

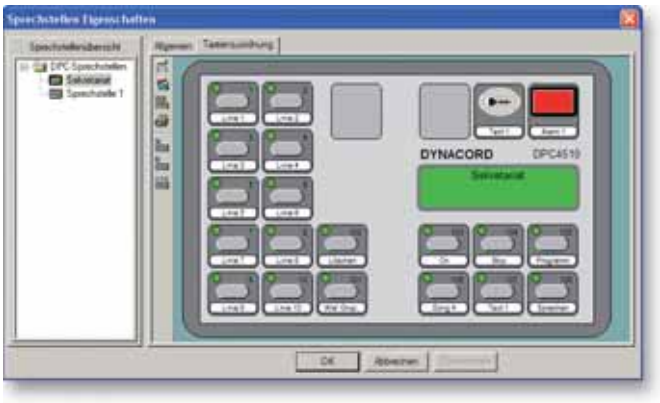
The PC needs to be connected to the system only for loading or for changing a configuration and is not required during regular operation. However, the PC does allow for detailed indication of status information, hard copy protocols, and real-time monitoring functions.











PROMATRIX® Lite

Simple parameter changes can be carried out by using **PROMATRIX®** Lite, a user-friendly software interface, slightly reduced in functions compared to the full version. This program permits changes of level settings, system and slave clock settings, calendar entries (times for the break/pause gong signal), block diagram display, and print-outs as well as the performing of elementary recording tasks.

PROMATRIX® Demo

In order to become more familiar with the **PROMATRIX® Systems** and especially the programming, **PROMATRIX® Demo** provides a software which allows complete configuration of a system.
With this software it is, however, not possible to connect with a system and transfer the configuration to the DPM 4000.

The software **PROMATRIX® Lite** and **PROMATRIX® Demo** can be downloaded from the **PROMATRIX®** homepage (www.promatrix-system.com).

DPA 4410 and DPA 4411

The **PROMATRIX®** 4-channel power amplifier **DPA 4410** and **4411** that follow the newest topology and provide 4 x 100 watts output power according to the IEC 268-3 / 19.4 standard. They are capable of driving high-impedance and low-impedance loudspeaker systems at the same time; i. e. the simultaneous operation of 100 V and 4 Ohm speaker systems is possible.
The intelligent output design allows following configurations of the four power outputs:

- 4 x 100 W
- 1 x 200 W and 2 x 100 W
- 2 x 200 W.

The four inputs are provided as XLR-type connectors (0 dBu) and can be equipped with input transformers. Additionaly provided are routing switches, allowing input coupling.

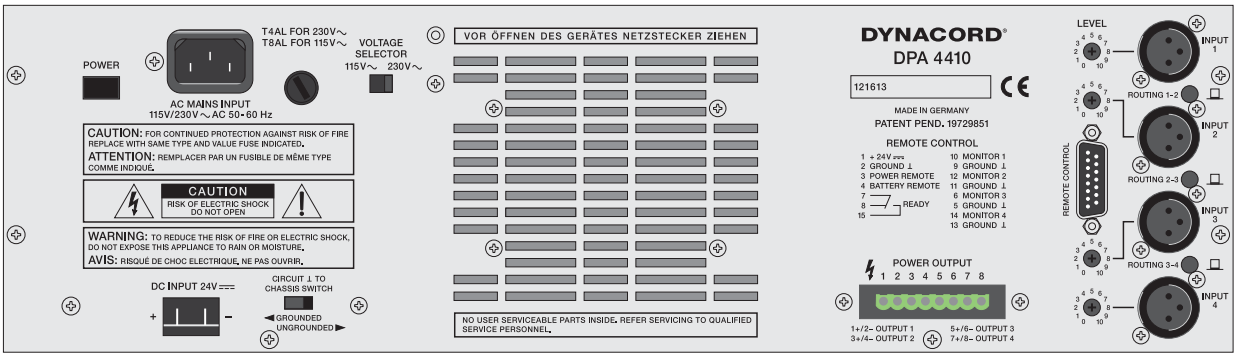
Remote-starting the power amplifier is possible when it is operated on mains supply or on 24 V DC emergency power supply. It employs an initial current inrush limiter.
When incorporating the amplifier in a rack system, to avoid noise-loops, in most cases it is inevitable to separate the circuitry ground from the enclosure. Thus, an integrated ground-lift switch is provided.
Thermal stability is obtained by an active, temperature-controlled ventilation system.
The silently running fans allow operating the power amplifier even in a control-room environment. Of course, the power amplifiers are idle-protected and short-circuit-proof.
The four output transformers for the balanced, floating loudspeaker network can be optionally internally set to 100 V, 70 V, 50 V, and even 4 Ohm operation.

LED indicators displaying the amplifier's actual operational status (ready), standby, ground-fault, and thermal overload (protect) as well as LED-meter instruments (–13 dB to 0 dB and CLIP) are provided.
Both amplifier types – **DPA 4410** and **DPA 4411** – are generally constructed the same way. In the **DPA 4411**, however, an additional fixed-installed unit is the amplifier remote control and surveillance feature. Control and monitoring of the **DPA 4411** are handled by the **DPM 4000**.

Safety Features:

To be able to use the amplifiers in alarm sound reinforcement systems, it is necessary that in case of probable fault they deliver a message which is in accordance to IEC 60849 standards. Additionally, the DIN VDE 0800 regulation requires ground-fault monitoring for floating, balanced 100 V speaker networks.
The secure floating operation of **DPA 4000** Series power amplifiers is ensured by pilot tone monitoring of the system. This signal is also evaluation criteria for the automatic reserve-switching of the power amplifiers; i. e. when one amplifier fails operating another power amplifier automatically takes over the tasks of the first.

For electro acoustic emergency announcement and evacuation alarm systems it is mandatory that power amplifiers stay functional even in cases of a mains power outage. Since there are only very few cases where an emergency power generator takes over the power supply, amplifiers must provide the opportunity for battery-based operation. All **PROMATRIX® Series** power amplifiers fulfill these requirements.



DPA 4410 and DPA 4411

Specifications	DPA 4410	DPA 4411
Power Supply:		
Mains	115 V / 230 V AC, ±10 %	115 V / 230 V AC, ±10 %
Mains Frequency	50 - 60 Hz	50 - 60 Hz
Battery	24 V DC, -10 / +30 %	24 V DC, -10 / +30 %
Safety Class	I	I
Mains Power Consumption	1010 VA at nominal output 377 VA driven at -10 dB 62 VA no signal	1010 VA at nominal output 377 VA driven at -10 dB 67 VA no signal
24 V DC Power Consumption	18 A at nominal output 7.5 A driven at -10 dB 1.0 A no signal / 2.5 mA in stand-by	18 A at nominal output 7.5 A driven at -10 dB 1.1 A no signal / 2.5 mA in stand-by
Input Characteristics:	balanced	balanced
Nominal Input Level	775 mV / 0 dBu	775 mV / 0 dBu
Nom. Input Impedance	≥ 10 kΩ	≥ 10 kΩ
Power Output Characteristics:	balanced, floating	balanced, floating
Nominal Output Power (Mains)	4 x 100 W (acc. to IEC 268-3 / 19.4) 2 x 200 W configurable 1 x 200 W + 2 x 100 W configurable	4 x 100 W (acc. to IEC 268-3 / 19.4) 2 x 200 W configurable 1 x 200 W + 2 x 100 W configurable
Nom. Load Impedance	100 Ω / 100 V, 50 Ω / 70 V 25 Ω / 50 V, 4 Ω / 20 V	100 Ω / 100 V, 50 Ω / 70 V 25 Ω / 50 V, 4 Ω / 20 V
Frequency Response	60 Hz .. 20 kHz	60 Hz .. 20 kHz
Distortion @ 1 kHz and Nom. Outp. Power	≤ 1 %	≤ 1 %
Interference Voltage (A)	≤ 1.2 mV / -56 dBu	≤ 1.2 mV / -56 dBu
Monitor Output Characteristics:	unbalanced	electronically balanced
Nominal Output Voltage	2 V / + 8.2 dBu	2 V / + 8.2 dBu
Nom. Load Impedance	600 Ω	600 Ω
Temperature Range	+5 °C .. +40 °C	+5 °C .. +40 °C
Dimensions (w x h x d)	483 x 132 x 345 mm, 19” / 3 HU	483 x 132 x 345 mm, 19” / 3 HU
Installation Depth without Connectors	340 mm	340 mm
Installation Depth including Connectors	max. 410 mm	max. 410 mm
Weight	22.3 kg	22.5 kg
Color	anthracite	anthracite
Extension-kits for the DPA 4410 / DPA 4411:		
NRS 90206 Pilot Tone Monitoring (for four amplifiers)		
NRS 90207 Ground-Fault Monitoring (for four amplifiers)		
NRS 90227 Output Transformer (floating, balanced monitor outputs) for DPA 4411		
Additional Version DPA 4411:		
DPA 4411N: DPA 4411 + NRS 90206 + NRS 90207		

DPA 4120 and DPA 4140

Two single-channel power amplifiers – the **DPA 4120** with an output of 200 watts and the **DPA 4140** offering 400 watts output power capacity, according to the IEC 268-3 / 19.4 standard – complete the **PROMATRIX®** Series.
Offering identical performance features as the four-channel model, these power amplifiers can be included into any electro acoustic sound reinforcement system.

It is possible to order the **DPA 4120** / **DPA 4140** power amplifiers either with the standard input module or with a microprocessor-controlled remote control module which provides the full support of their remote control and remote monitoring features.

Control and monitoring are accomplished through the RS-485 remote interface of the **DPM 4000 PROMATRIX®** Manager.

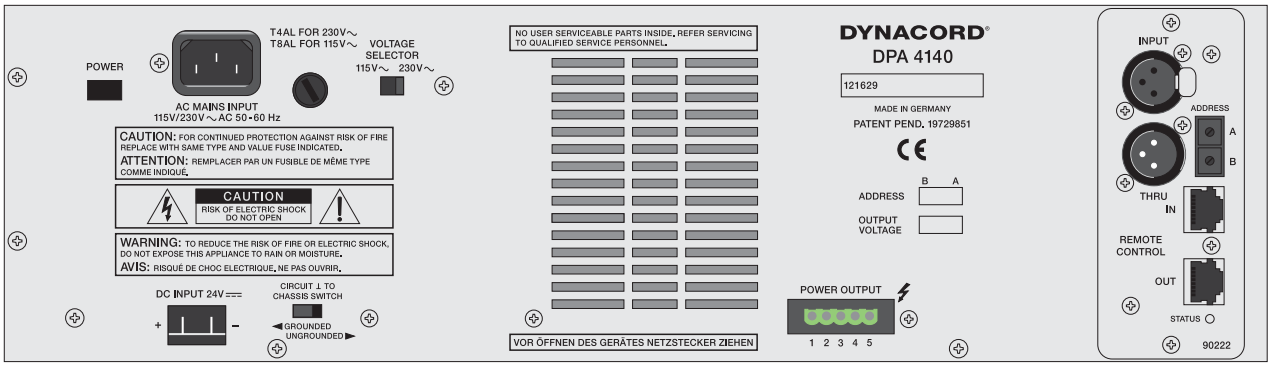
The power amplifiers **DPA 4120** and **DPA 4140** support the following remote-functions:

Control:

- Input level by the use of a programmable level control
- Mute function
- Mains ON/OFF with programmable, delayed switching
- Battery supply ON/OFF
- Monitor signal routing (input or output) to the monitor bus system
- Pilot tone signal ON/OFF.

Monitoring:

- Thermal overload of the power supply unit
- Thermal overload of the power amplifier stage
- Input level
- Ground-fault
- Pilot tone signal
- Output level
- Speaker lines (short-circuit, interrupt, impedance deviation).



DPA 4120 and DPA 4140

Specifications	**DPA 4120**	**DPA 4140**
Power Supply:		
Mains	115 V / 230 V AC, ±10 %	115 V / 230 V AC, ±10 %
Mains Frequency	50 - 60 Hz	50 - 60 Hz
Battery	24 V DC, -10 / +30 %	24 V DC, -10 / +30 %
Safety Class	I	I
Mains Power Consumption	520 VA at nominal output 200 VA driven at -10 dB 30 VA no signal	1020 VA at nominal output 380 VA driven at -10 dB 44 VA no signal
24 V DC Power Consumption	9.1 A at nominal output 3.7 A driven at -10 dB 0.4 A no signal / 2.5 mA in stand-by	17.3 A at nominal output 7.1 A driven at -10 dB 0.6 A no signal / 2.5 mA in stand-by
Input Characteristics:	balanced	balanced
Nominal Input Level	775 mV / 0 dBu	775 mV / 0 dBu
Nom. Input Impedance	≥ 10 kΩ	≥ 10 kΩ
Power Output Characteristics:	balanced, floating	balanced, floating
Nom. Output Power (Mains)	200 W (acc. to IEC 268-3 / 19.4)	400 W (acc. to IEC 268-3 / 19.4)
Nom. Load Impedance	50 Ω / 100 V, 25 Ω / 70 V 12.5 Ω / 50 V, 4 Ω / 28 V	25 Ω / 100 V, 12.5 Ω / 70 V 6.25 Ω / 50 V, 4 Ω / 40 V
Frequency Response	60 Hz .. 20 kHz	60 Hz .. 20 kHz
Distortion @ 1kHz and Nom. Outp. Power	≤ 1 %	≤ 1 %
Interference Voltage (A)	≤ 1.2 mV / -56 dBu	≤ 1.2 mV / -56 dBu
Monitor Output Characteristics:	electronically balanced	electronically balanced
Nominal Output Voltage	2 V / + 8.2 dBu	2 V / + 8.2 dBu
Nom. Load Impedance	600 Ω	600 Ω
Temperature Range	+5 °C .. +40 °C	+5 °C .. +40 °C
Dimensions (w x h x d)	483 x 132 x 345 mm, 19” / 3 HU	483 x 132 x 345 mm, 19” / 3 HU
Installation Depth without Connectors	340 mm	340 mm
Installation Depth including Connectors	max. 410 mm	max. 410 mm
Weight	13.2 kg	16.7 kg
Color	anthracite	anthracite
Extension-kits for the DPA 4120 / DPA 4140: NRS 90222 Remote module (note: not supplied with the DPA 4120/DPA 4140) NRS 90224 Pilot tone & ground-fault monitoring (note: not supplied with the DPA 4120/DPA 4140) NRS 90225 Standard input module (note: not supplied with the DPA 4120/DPA 4140) NRS 90227 Output transformer (floating, balanced monitor output) Additional Version DPA 4140: DPA 4140N: DPA 4140 + NRS 90222 + NRS 90224		

DPA 4245 and DPA 4260

Especially designed for permanent installations, the 2-channel power amplifiers – **DPA 4245** and **DPA 4260** – offer superb performance, reliable operation, and uncompromising sound quality.

The power amplifiers incorporate 2 high-performance output transformers each. Next to 100 V, 70 V, and 25 V floating outputs, the direct outputs provide the possibility to also drive loudspeaker systems with low-impedance down to a minimum of 4 ohms. Simultaneous operation of low-impedance speaker systems and floating loudspeaker lines of the power amplifiers is possible as well.

The integrated 45 Hz LO-cut filter with 18 dB/oct. slope protects the connected loudspeaker lines from unwanted ultra-low frequencies.
Comparator circuitry constantly monitors the input and output signals of the power amplifiers and activates their internal limiters whenever non-linear operation is encountered. This reliably protects the connected loudspeaker systems against overload resulting from clipping, saturation of the power supply transformers, and over-voltage at the outputs.

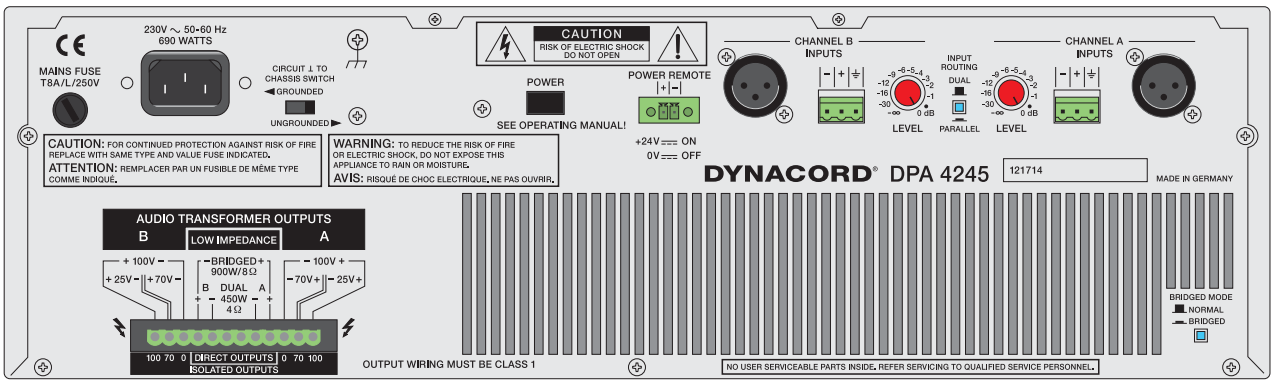
The **DPA 4245** / **DPA 4260** power amplifiers' transmission and sound qualities are absolutely superb (for details see technical specifications).
The employed, comprehensively dimensioned power supply units with low-interference toroidal transformers ensure that the stated nominal performance specifications are met even in most demanding and critical installations.

Quick optical information on the power amplifiers' actual operational status is provided through easily legible LED indicators, individually showing whether a channel is ready for operation, signal is present at the output, if any of the limiter circuits and/or one of the protection circuits has been activated.

The inputs are electronically balanced and carried out as XLRF-type and as binding post clamping connectors as well. Input transformers can be optionally retrofitted. Parallel linking the two connector types at the input provides the possibility to utilize the carried-through signals to feed additional power amplifiers, without the necessity for special split-cables. Input Routing switches allow configuring the power amplifiers for stereo, parallel-mono, or bridged-mode operation.

The dB-scaled level controls and a ground-lift switch which helps eliminating ground noise loops by separating the amplifier circuit ground from the common ground of the enclosure, are located on the rear of the appliances. Loudspeaker line connection is provided through a binding post strip where all voltages – 25 V, 70 V, 100 V – and the low-impedance output are present on individual screw-clamp connectors. Starting the power amplifiers remotely is possible via rear panel service mains switches or power remote inputs.

Thermal stability of the power amplifiers is obtained through extremely silent running fans which are automatically switched stepwise, depending on the amplifiers' operation mode while front-to-rear air circulation guarantees trouble-free operation in rack-shelf enclosures of any size.



DPA 4245 und DPA 4260

Specifications	**DPA 4245**	**DPA 4260**
Power Supply:		
Mains	230 V AC / 50 - 60 Hz	230 V AC / 50 - 60 Hz
Safety Class	I	I
Mains Power Consumption	1714 VA at nominal output 635 VA driven at -10 dB 78 VA no signal	2268 VA at nominal output 842 VA driven at -10 dB 131 VA no signal
Input Characteristics:	electronically balanced	electronically balanced
Nominal Input Level	775 mV / 0 dBu	775 mV / 0 dBu
Input Impedance	20 kΩ	20 kΩ
Power Output Characteristics:	balanced, floating	balanced, floating
Maximum Output Power Capacity	450 W into 4 Ω	600 W into 4 Ω
Nominal Output Power Capacity	350 W (acc. to IEC 268-3 / 19.4)	500 W (acc. to IEC 268-3 / 19.4)
Nom. Outp. in Bridged-Operation	700 W (acc. to IEC 268-3)	1000 W (acc. to IEC 268-3)
Nom. Load Impedance	28.5 Ω / 100V 14 Ω / 70 V 1.8 Ω / 25 V 4 Ω / 37.4 V	20 Ω / 100V 9.8 Ω / 70 V 1.25 Ω / 25 V 4 Ω / 44.7 V
Frequency Response	45 Hz .. 22 kHz (-3 dB)	45 Hz .. 22 kHz (-3 dB)
Distortion @ 1kHz and Nom. Outp. Power	≤ 0.1 %	≤ 0.1 %
S/N range	> 100 dB	> 100 dB
Protection Circuitry	audio limiter, thermal overload, DC, HF, Back-EMF, peak current limiter, initial current inrush limiter, power-on delay, saturation limitation circuit for the output transformers	
Temperature Range	+5 °C .. +40 °C	+5 °C .. +40 °C
Dimensions (w x h x d)	483 x 132.5 x 384 mm, 19” / 3 HU	483 x 132.5 x 384 mm, 19” / 3 HU
Installation Depth without Connectors	377 mm	377 mm
Installation Depth including Connectors	max. 437 mm	max. 437 mm
Weight	20.5 kg	22.5 kg
Color	anthracite	anthracite
Extension-kits for the DPA 4245 / DPA 4260: NRS 90208 Input transformer (for one input)		

DPC 4000 Series

The paging stations of the **PROMATRIX® System** fulfill all technical requirements of modern communication equipment. They are built from rigid metal enclosures with plastic side-panels. The desktop microphone terminals can be optimally integrated into any modern office environment. Installing them in a console or 19“ rack-system is easily accomplished by using optionally available mounting frames.

All **PROMATRIX® DPC 4000** Paging Consoles employ integrated micro processors to control their internal functions and the data communication with the central unit. The integrated watchdog-circuit guarantees self-monitoring according to EN 60849 standards while a pilot-tone oscillator guards the analog LF-section.

The pre-amplifier for the Back-Electret-Condenser microphone is equipped with a compressor / limiter function. The elegant microphone with internal pop-filter is mounted on a black gooseneck. The paging station offers an additional, external input for the connection of PTT-microphones (Push-to-Talk microphones, handheld microphones with talk-button) with priority function. The input can also be set to 0 dB, allowing the connection of other signal sources, as well.

Reliable protection of the microphone terminals against unauthorized access is provided through password protection. Malfunctioning or erroneous operation is brought to the user's attention through a sound signal which is generated by the internal buzzer.

Intercom functions between individual paging stations can be achieved through connecting an optional loudspeaker which, in case it is included in the system’s software-configuration, may also be used for monitoring purposes.

For multiple application possibilities, the **DPC 4000 Series** offers 5 different basic models (of paging stations):
The smallest paging console is the **DPC 4106** with 6 keys. A larger model is the **DPC 4510** with 18 keys plus an additional (covered) alarm key. Next in size are the **DPC 4520** and the **DPC 4530** with 28 respectively 38 keys and finally the **DPC 4550** with 58 keys. These last three models all come equipped with a covered alarm key.

Usually, the keys are configured as function and selection keys (e.g. 8 function keys, 50 selection keys, 1 alarm key as with the **DPC 4550**). However, free programming for all functions available within the **PROMATRIX® System** is possible.
Should more than 50 keys be required for a certain application, the **DPC 4000** series offers the **DPC 4350** extension, which can be connected to any basic paging station in order to extend it by an additional 50 keys.

The handling is according to ergonomic standards. All selection keys of the paging consoles have status LED-indicators and are freely configurable.

It is possible to program the following parameters: zones, groups, priorities, message and background music volume levels, program-assignment, and special functions.

All paging stations employ LC-displays with plain language message indication including: status messages, (multi-lingual) directives, external fault messages, and custom-configured messages. In addition, a password-protected service- and maintenance program can be activated, allowing to check the system's proper operation.

The EN 60849 standards require an alarm-button which is closed-circuit-monitored and protected against erroneous operation. Thus, the alarm-buttons on the **DPC 4000** series paging consoles have a protective cover that can be sealed, if desired. Optionally incorporating two additional alarm-buttons or key-lock switches is also possible.

DPC 4550 and DPC 4350

Specifications	**DPC 4550**	**DPC 4350**
Operating Voltage	24 V DC -10 / +30 %	24 V DC -10 / +30 %
Power Consumption	90 mA	90 mA
LF - Input, external		
PTT - Microphone (bridges A & B closed)	-52 dBu	-
Line (default)	0 dBu	-
LF-Output (electronically balanced)	+6 dBu	-
Alarm Key with Cover, sealable	yes	-
DPC 4350 Connection, possible	yes	-
Connection	RJ-45	RJ-45
Connection Cord, supplied	3 m	0.5 m
LC-Display	2 x 16 characters	-
Temperature Range	+5° C ... 40° C	+5° C ... 40° C
Dimensions of the Enclosure (w x d x h)	405 x 160 x 65 mm	335 x 160 x 65 mm
Gooseneck	ø 8 x 200 mm	-
Weight	2.5 kg	1.9 kg
Finish / Color	gray-white RAL 9002 micro structure	gray-white RAL 9002 micro structur

Extension-kits:

NRS 90230	Push-button / switch ø 18 mm
NRS 90231	Key-lock switch ø 18 mm
NRS 90238	Panel for rack / console installation (DPC 4550)
NRS 90272	Control speaker (DPC 4550)

DPC 4000 Paging Consoles

Data transfer to the central unit is established via the RS-485 port and, through polling, continuously monitored by the **DPM 4000**. Connection is performed via an integrated RJ-45 socket. Function keys for talking, gong signal, text, all (collective call), erase, ON, stop, and program as well as busy and system power-on LED-indicators complete the paging stations' user interface.
A critical point with most paging terminals is the labeling of buttons. They are supposed to be small in size but also robust to allow their use outside of offices. Frequently, there is not

Specifications	**DPC 4530**	**DPC 4520**
Operating Voltage	24 V DC -10 / +30 %	24 V DC -10 / +30 %
Power Consumption	90 mA	85 mA
LF - Input External		
PTT - Microphone (bridges A & B closed)	-52 dBu	-52 dBu
Line (default)	0 dBu	0 dBu
LF-Output (electronically balanced)	+6 dBu	+6 dBu
Alarm Key with Cover; sealable	yes	yes
DPC 4350 Extension Connection	yes	yes
Connection	RJ-45	RJ-45
Connection Cord supplied	3 m	3 m
LC-Display	2 x 16 characters	2 x 16 characters
Temperature Range	+5° C ... 40° C	+5° C ... 40° C
Enclosure Dimensions (w x d x h)	320 x 160 x 65 mm	270 x 160 x 65 mm
Gooseneck	ø 8 x 200 mm	ø 8 x 200 mm
Weight	1.8 kg	1.7 kg
Finish / Color	gray-white RAL 9002 micro structure	gray-white RAL 9002 micro structure

Extension-kits:

NRS 90230	Push-button / switch ø 18 mm
NRS 90231	Key-lock switch ø 18 mm
NRS 90248	Panel for rack / console installation (DPC 4530)
NRS 90271	Control speaker (DPC 4530)
NRS 90237	Panel for rack / console installation (DPC 4520)
NRS 90270	Control speaker (DPC 4520)

enough space for the attachment of well legible and unambiguous labels which would, especially in emergency situations, help prevent hitting the wrong key.
We provide you with an ideal solution: easy labeling through label-strips that are simply inserted underneath the front panel.

Easy designing and printing customized label-strips is possible through using the supplied MS-WORD™ (Microsoft Word) template.

Specifications	**DPC 4510**	**DPC 4106**
Operating Voltage	24 V DC -10 / +30 %	24 V DC -10 / +30 %
Power Consumption	80 mA	80 mA
LF - Input External		
PTT - Microphone (bridges A & B closed)	-52 dBu	-52 dBu
Line (default)	0 dBu	0 dBu
LF-Output (electronically balanced)	+6 dBu	+6 dBu
Alarm Key with Cover; sealable	yes	optional
DPC 4350 Extension Connection	yes	yes
Connection	RJ-45	RJ-45
Connection Cord supplied	3 m	3 m
LC-Display	2 x 16 characters	2 x 16 characters
Temperature Range	+5° C ... 40° C	+5° C ... 40° C
Enclosure Dimensions (w x d x h)	225 x 160 x 65 mm	170 x 160 x 65 mm
Gooseneck	ø 8 x 200 mm	ø 8 x 200 mm
Weight	1.5 kg	1.0 kg
Finish / Color	gray-white RAL 9002 micro structure	gray-white RAL 9002 micro structure

Extension-kits:

NRS 90230	Push-button / switch ø 18 mm
NRS 90231	Key-log switch ø 18 mm
NRS 90236	Panel for rack / console installation (DPC 4510)
NRS 90253	Panel for rack / console installation (DPC 4106)
NRS 90269	Control speaker (DPC 4510)

DPC 4000R

The DYNACORD **PROMATRIX®** paging stations **DPC 4510 / 10R** and the **DPC 4520 / 20R** are “two in one“ microphone terminals for the **PROMATRIX® System** in a 19“ enclosure, which allow to control redundant parts of the installation in A/B wiring to operate both systems independently, using common, electrically separated controls. By using the paging station, it is possible to simultaneously trigger functions such as live announcements, alarms, permanently stored messages or macros in both parts of the system.
Each **DPC** paging console provides individual connections for linking with the paging station inputs NRS 90215 or NRS 90234 of the two corresponding **DPM 4000** units.

The **DPC** Redundant Paging Consoles are available in the following versions:

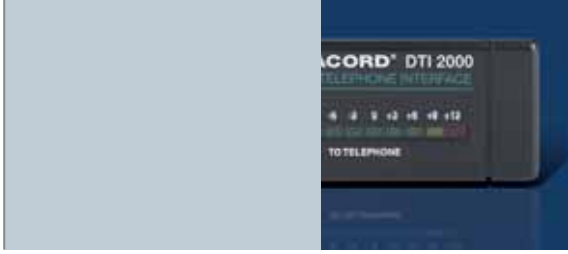
- **DPC 4510 / 10R** with 8 function keys, 10 selection keys and 3 covered keys
- **DPC 4520 / 20R** with 8 function keys, 20 selection keys und 3 covered keys.

All **DPC** paging consoles have a micro-processor for the controlling of all functions, including the microphone. Each key provides 2 control LEDs as status indicator for both systems. Two double-spaced LC displays give information and status reports of both systems.

The **DPC** paging station microphones are condenser microphones containing a pre-amplifier as well as a compressor / limiter function. All keys are freely programmable. An in-built watchdog circuit monitors the processor system. Additionally, the internal power supply is continuously controlled, and errors or faults are indicated immediately.

Line monitoring for audio wiring and for RS-485 control lines allows detection and report of line interruption or short circuit. The **PROMATRIX®** Designer Software is used for configuration of the **DPC** paging consoles. A graphical and dialog-oriented user interface facilitates the setting and determining of all key functions, priorities and other **DPC** features.

Specifications	**DPC 4510 / 10R**	**DPC 4520 / 20R**
Operating Voltage	24 V DC (21.6 V – 31.2 V)	24 V DC (21.6 V – 31.2 V)
Input Current (24 V)	2 x 80 mA	2 x 85 mA
Audio Outputs	2 x +6 dBu	2 x +6 dBu
Covered Keys	3	3
Function and Selection Keys	18	28
Display	2 x LCD, each 2 lines à 16 digits	2 x LCD, each 2 lines à 16 digits
Connectors	2 x RJ-45	2 x RJ-45
Ambient Temperature	+5 … +40°C	+5 … +40°C
Dimensions (w x h x d)	480 x 130 x 250 mm, 19“ / 3 HU	480 x 130 x 250 mm, 19“ / 3 HU
Weight	approx. 4.9 kg	approx. 5 kg
Color	anthracite	anthracite



DTI 2000

The **DTI 2000** is a telephone interface for the **PROMATRIX®** System, freely configurable and micro processor controlled.
It is designed to allow connection of the **PROMATRIX®** System to a telephone installation or the telephone network.
The **DTI 2000** provides the user with a comprehensive paging interface for announcements via a standard analog connection (POTS). Thanks to the **DTI 2000**, audio signals, pre-recorded text messages as well as control functions (macros) within the **PROMATRIX®** System may be activated remotely simply by phone.
The **DTI 2000** is controlled by means of DTMF signals ("multi-frequency dialing mode"). Interaction with the user takes place via audio beeps. The caller's audio signals can be metered and adjusted on the front panel of the device. Password protection on two levels prevents unauthorized access to system functions.

The process of programming as well as the choice of functions with the **DTI 2000** is the same as with a DPC paging console. It can be connected to the DPM 4000 with audio and RS-485 connectors via a regular standard connection for DPC paging stations.
At the end of each announcement, the **DTI** interface automatically disconnects. Furthermore, the **DTI** can be configured for a large variety of phone standards (21 different national versions).

Essential Features

- Selection of up to 100 zones
- Selection of up to 20 caller groups
- Selection of multiple circles and groups for announcements
- Activation of recorded messages (message playback)
- Activation of special functions (macros)
- Programmable priorities
- Password protection on two levels
- "handshaking signal" for OK, wrong entry (text input), line busy, text running, etc
- Level setting for audio signals via front trimmer.

Specifications	**DTI 2000**
Audio output level	0 dBu ... + 20 dBu
Signal / Noise Ratio SNR	> 60 dB
Frequency Response	300 Hz… 3.8 kHz (+0 / -6 dB)
Telephone socket	2 x RJ-11 (Loop-Thru)
DPM 4000 Interface	RJ-12, DB-9 female
Power Supply	100…240 V AC, 50 / 60 Hz, 1 A
Dimensions (w x h x d) without bracket	208 x 44 x 203 mm
Weight	2.0 kg
Accessories	19" mounting bracket (1 HU)

DMM 4650

The **DMM 4650** digital signal processor with message manager completes the **PROMATRIX® System**.
Its 19"-enclosure with 1 HU houses the message recorder, alarm signal and gong signal generator, and an extremely versatile sequencer.
The message manager employs a flash-memory wich is absolutely maintenance-free and provides the possibility of direct digital recording and reproduction of at least 100 different sound and speech signals.
This also guarantees full compliance with the EN 60849 requirements. Depending on the installed storage capacity, the maximum recording time can be up to 16 minutes. While recording quality is selectable, the maximum bandwidth is 16 kHz.

The appliance allows direct connection of external microphones or other audio signal sources (CD, tape, Line), and remotely controlling the recording is possible without a problem.
The digital alarm signal generator provides all commonly used national and international alert signals, including: alarm signals for working environments according to the DIN 33404 standard; SOLAS, German Lloyd and IMO (International Maritime Organization) ship alarm signals; alarm BVS - civil service; alarm KTA - radioactive radiation alert; alarm signals of the German mail services.
The digital gong signals generator provides several different signals, including: pre-gong, 2, 3, and 4-sound movie theater gong.

To be able to fulfill specific requirements of our customers, the most important performance feature is the automated, system-controlled launch of sequences which can involve alerts, text messages, gong signals, and "live"-messages (e.g. coming from a paging console at the local fire brigade station) in a free configuration.
Several sequences are pre-programmed and stored in factory-presets to make the handling of such a complex system as easy as possible. These presets include at least 15 acoustical alarm signals, 6 different gong signals and the necessary control procedures.

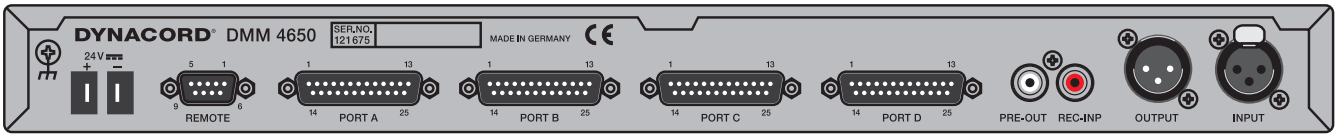
Safety Features :

- Self-monitoring in compliance with the EN 60849 standards; with fault message output
- Password protection for several levels
- RS 232 interface for data backup and servicing purposes
- Integrated service and maintenance software program.

The micro processor-controlled **PROMATRIX® Message Manager DMM 4650** employs a separate digital signal processor. The double spaced LC-display provides the user with all important status information and guides him during configuration through the program menus. Additionally, the amount of used memory is indicated.

The priority of all procedures is freely assignable. In addition to the factory-presets, 40 user-configurable presets are available for programming and storing custom configurations.

All parameters can be edited. The **DMM 4650** provides electronically balanced inputs and outputs wich can optionally be retrofitted with transformers.

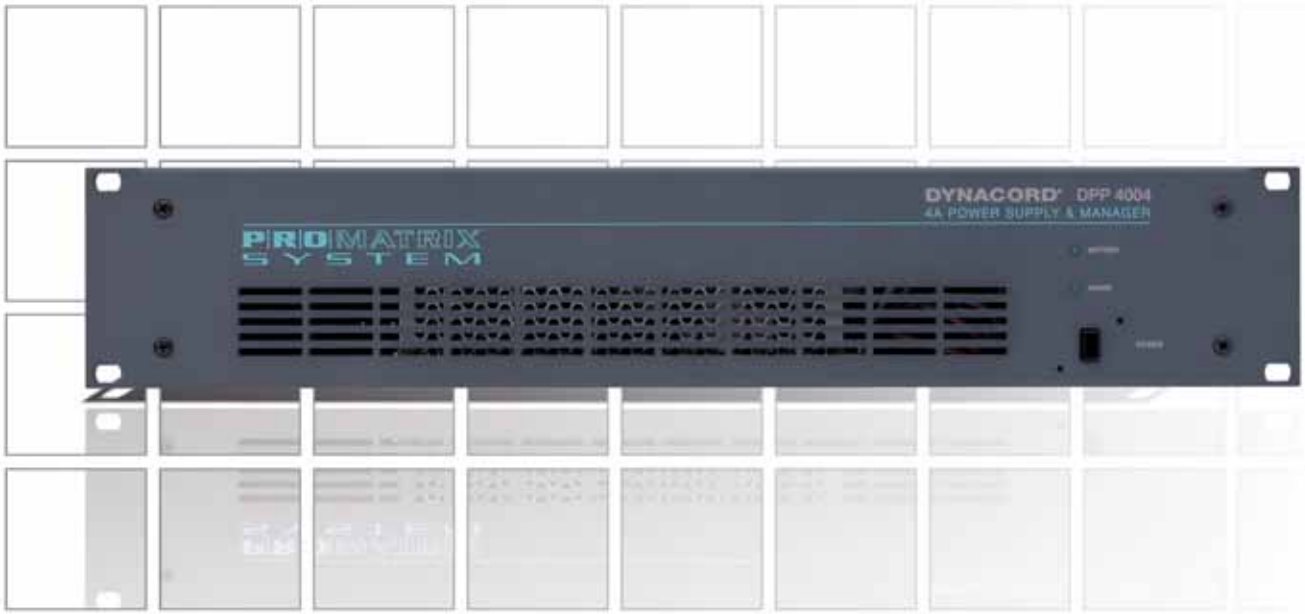


DMM 4650

Specifications	**DMM 4650**
Operating Voltage	24 V DC, -10 / +30 %
Power Consumption	18 W (without extensions)
Input Voltage	
Input	775 mV / 0 dBu
Line, Rec Input	775 mV / 0 dBu
Mic Input	1.4 mV / -54 dBu
Max. Input Voltage	
Input	3.8 V / +14 dBu
Line, Rec Input	30 V / +32 dBu
Mic Input	50 mV / -24 dBu
Input Impedance	
Input	20 kΩ
Line, Rec Input	20 kΩ
Mic Input	1.4 kΩ
Output Voltage	
Output	0.775 V / 0 dBu
Pre-Output, Phones	3.2 V / +12 dBu
Max. Output Voltage	
Output	3.8 V / +14 dBu
Pre-Output, Phones	9 V / +21 dBu
Output Impedance	
Output	136 Ω
Pre-Output, Phones	220 Ω
Frequency Response	
Input > Output	20 Hz .. 20 kHz, -3 / 0 dB
Mic-Input	20 Hz .. 16 kHz, -18 / -3 dB
Others	20 Hz .. 16 kHz, 0 / -3 dB
S/N Ratio	
Input > Output	>108 dB (A)
Message	>90 dB (A)
Distortion	
Input > Output	< 0,03 % (@ 1 kHz)
Message	< 0,05 % (@ 1 kHz)
Data Format	
AD / DA Conversion	16 Bit linear
DSP internal	24 Bit
Sampling Rate	35 kHz
Control Inputs	UiN ≤ ±5 V = Low UiN ≥ ±10 V = High
Control Outputs	floating relay contacts 1 A with 24 V DC
Dimensions (w x h x d)	483 x 43.6 x 225 mm, 19“ / 1 HU
Weight	4 kg

Extension-kits for the DMM 4650:

NRS 90204	4 control inputs and outputs for the ports C / D
NRS 90205	Message memory extension
NRS 90210	Output transformer



DPP 4004 and DPP 4012

The power supply rack-units **DPP 4004** and **DPP 4012** were designed to provide the emergency supply voltage of 24 V DC for a **PROMATRIX® System**. Through their universal performance features, using them together with any other PA-system is possible as well.

The power supply units provide all functions that modern PA-systems require, including: automatic and gapless switching between mains and battery supply as well as remote ON/OFF-functions.

Using the front panel mains switch allows turning the system power off completely. To prevent inadvertent erroneous switching, a cover lid can be installed with the switch being in the ON-position.

For sheer mains operation without remote control functions and without the need for battery supply, both units provide a DIRECT OUT with which the **DPP 4004** can handle a current load of max. 4 A and the **DPP 4012** of max. 12 A.

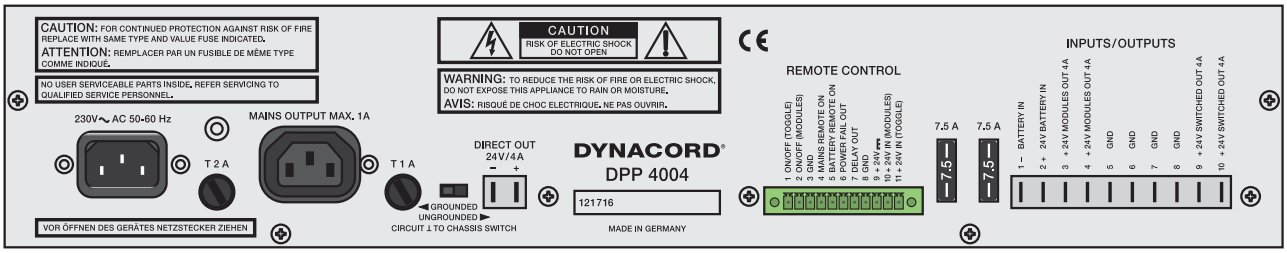
The provided SWITCHED OUT also handles current loads of 4 respectively 12 A and is meant for connecting the **DPM 4000** and other gear that needs gapless power supply.

During normal operation, this output is connected to the internal switch-mode power supply. In case of temporary power-loss, power-failure, or malfunctioning of the switch-mode power supply, this output is switched to battery supply within fractions of a second, providing gapless power supply for all connected devices. When the mains supply is restored or after solving the problem that caused the mal-function, the appliance automatically returns to mains operation with a delay of 600 ms.

An additional switched output can be utilized for connecting devices which can be switched off during times of power outage or when the system is in stand-by mode; e.g. relay-fields, text-message devices, power amps, etc. Switching off unneeded devices during power failure is preferable, otherwise the battery is unnecessarily strained and wears out earlier.
The output employs a softstart-function which slowly increases the power during power-on, preventing the main supply from interference by possible capacitive loads connected.
All outputs are internally short-circuit-protected and can be operated without loads connected.

Performance Features:

- Primary sync switch-mode power supply which supports any 24 V DC module in PA-systems
- Covered mains switch
- Mains and battery status indicator LEDs
- Initial current inrush limiter / smooth operation
- Short-circuit protected outputs
- Forced ventilation
- Mains voltage 104-127 / 207-253 V AC; internally switchable
- Emergency power supply via battery input connector
- Mains output, switched, via rubber plug
- 24 V direct outputs, gapless switching, remote controlled
- Control outputs for remotely switching between mains and battery supply of power amplifiers
- Output for power failure recognition.


CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE REPLACE WITH SAME TYPE AND VALUE FUSE INDICATED.
ATTENTION: REMPLACER PAR UN FUSIBLE DE MÊME TYPE COMME INDIQUÉ.
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
VOR ÖFFNEN DES GERÄTES NETZSTECKER ZIEHEN
230V~ AC 50-60 Hz
T 2 A
MAINS OUTPUT MAX. 1A
T 1 A
CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
AVIS: RISQUÉ DE CHOC ELECTRIQUE. NE PAS OUVRIR.
DIRECT OUT
24V/4A
GROUNDED
UNGROUNDED
CIRCUIT ⊥ TO CHASSIS SWITCH
DYNACORD
DPP 4004
121716
MADE IN GERMANY
REMOTE CONTROL
1 ON/OFF (TOGGLE)
2 ON/OFF (MODULES)
3 GND
4 MAINS REMOTE ON
5 BATTERY REMOTE ON
6 POWER FAIL OUT
7 DELAY OUT
8 GND
9 + 24V (MODULES)
10 + 24V IN (MODULES)
11 + 24V IN (TOGGLE)
7.5 A
7.5 A
INPUTS/OUTPUTS
1 – BATTERY IN
2 + 24V BATTERY IN
3 + 24V MODULES OUT 4A
4 + 24V MODULES OUT 4A
5 GND
6 GND
7 GND
8 GND
9 + 24V SWITCHED OUT 4A
10 + 24V SWITCHED OUT 4A

DPP 4004 and DPP 4012

Specifications	DPP 4004	DPP 4012
Mains Power Supply		
Operating Voltage	230 V AC ± 10%, 50 - 60 Hz	230 V AC ± 10%, 50 - 60 Hz
Internally selectable	115 V AC ± 10%, 50 - 60 Hz	115 V AC ± 10%, 50 - 60 Hz
Safety Class	I	I
Mains Power Consumption	≤ 20 VA (idling) ≤ 120 VA with nom. load	≤ 25 VA (idling) ≤ 360 VA with nom. load
Battery Power Consumption		
Battery Voltage	24 V -10% / +30%	24 V -10% / +30%
Power Consumption	≤ 0.17 VA (idling) ≤ 4.1 VA with nom. load	≤ 0.17 VA (idling) ≤ 12.1 VA with nom. load
Output Characteristics		
Nominal Output Voltage	24 V	24 V
Nom. Output Current with Forced Ventilation	4 A	12 A
Residual Ripple Frequency	< 100 mV pp	< 100 mV pp
Mains Deviation	± 1 %	± 1 %
Current Carrying Cap. of the Control Outputs	1 A (Mains Remote On) 1 A (Battery Remote On) 0.1 A (Delay Out)	1 A (Mains Remote On) 1 A (Battery Remote On) 0.1 A (Delay Out)
Safety	EN 60065	EN 60065
Noise Suppression	EN 55022 (B) EN 50082-1 EN 6100 4-2...4-6 EN 50204	EN 55022 (B) EN 50082-1 EN 6100 4-2...4-6 EN 50204 EN 61000 3-2...3-3
Temperature Range	+ 5°C..+40°C	+ 5°C..+40°C
Dimensions (w x h x d)	483 x 88 x 330 mm, 19“/ 2 HU	483 x 88 x 330 mm, 19“/ 2 HU
Installation Depth including Connectors	400 mm	400 mm
Weight	7 kg	7 kg
Color	anthracite	anthracite

DEM 314 Emergency Power Supply

The **DEM 314** battery module with charging unit contains entirely maintenance-free, location-independent lead batteries with fixed electrolyte and a capacity of 26 Ah at a rated voltage of 24 V.
Its integrated charging unit is apt for cycle, standby-parallel and permanent charging mode.
The features of automatically limiting charging voltage and temperature tracking support the preservation of the battery life cycle. The integrated 3-digit LC display is optionally switchable to be either current or voltage indicator.
The **DEM 314** is the ideal and compact solution for uninterruptible operation during mains power failure.

DEM 314

Specifications	DEM 314
Operating Voltage	230 V, -15 % / +10 %
Frequency Range	50…60 Hz
Nominal Output Voltage	24 V DC
Nominal Capacity (for 20hrs)	26 Ah
Charging Voltage for 2.3 V-cell	27.6 V
Max. Discharge Current	50 A
Standby Current at Mains Failure	150 mA
Number of Outputs	5
Ambient Temperature	5…40° C
Dimensions (w x h x d)	483 x 133 x 370 (335) mm, 19“ / 3 HU
Weight	26.6 kg (with batteries) 8.5 kg (without batteries)
Color	anthracite

DEM 313 Battery Charging Unit

The battery charging unit **DEM 313** was especially designed for fully automatic charging and monitoring of batteries within emergency power supplies of alarm devices. Control of the charging voltage happens with primary-switched chopper regulator of high efficiency. The charging output is equipped with reverse voltage and short circuit protection.
An integrated battery-surveillance module reports a collective failure information via floating contact.
A combination of the **DEM 313** with the battery modules **DEM 316** or **DEM 317** results in a reliable and fail-safe emergency power source for continuous battery power supply in standby parallel mode.

DEM 313

Specifications	DEM 313
Mains Operating Voltage	115 V / 230 V, -15 % / +10 %
Frequency Range	50…60 Hz
Rated Output Voltage	24 V DC
Battery Charging Voltage	27.3 V (for 2.275 V / cell)
Nominal Charging Current	4 A
Standby Current at Mains Power Failure	110 mA
Switching Frequency	86 kHz
Efficiency Factor	83 % at Nominal Power
Operating Temperature Range	+5° C…+40° C
Dimensions (w x h x d)	483 x 88 x 335 mm, 19“ / 2 HU
Installation Depth	300 mm without Connector
Installation Depth	max. 350 mm with Connector
Weight	4.4 kg
Color	anthracite

DEM 316 and DEM 317 Battery Units

The battery modules **DEM 316** und **DEM 317** are 19“ drawer-type chassis, containing absolutely maintenance-free, location-independent lead (storage) batteries with capacities of 40 Ah (**DEM 316**) and 65 Ah (**DEM 317**). They are suitable for cycle, standby parallel and permanent charging mode. The charging input and the outputs for connection of the devices are each protected separately against over-voltage and short-circuit. Protection against exhaustive discharging is provided through a relay controlled by the **DEM 313** charging unit. In combination with the **DEM 313** and the DPP 4004, the battery units **DEM 316** and **DEM 317** ensure a remarkable bridging operation in case of mains power failure, even under extreme current load.

Additional Features:

- Absolute maintenance-free, location-independent lead batteries with grid plates and fixed electrolyte
- Charging input and battery outputs via AMP flat pin terminals 6.3 x 0.8 mm
- Charging input and all battery outputs fused
- Integrated temperature sensor for temp. tracking of charging voltage at standby charge depending on the battery temperature
- Batteries with VdS-registration and UL-recognition.

DEM 316

Specifications	DEM 316
Nominal Voltage	24 V
Discharge Voltage	21 V
Nominal Capacity	40 Ah
Nominal Discharge Current	1.90 A
Max. Discharge Current	100 A
Standby Current at Mains Failure	200 mA
Number of Outputs	14
Charging Voltage in standby at 20° C (standby parallel mode)	27.6 V
Nominal Charging Current	4 A
Dimensions (w x h x d) with Connectors	483 x 178 x 370 mm, 19“ / 4 HU
Weight	36.1 kg
Color	anthracite

DEM 317

Specifications	DEM 317
Nominal Voltage	24 V
Discharge Voltage	21 V
Nominal Capacity	65 Ah
Nominal Discharge Current	3.25 A
Max. Discharge Current	150 A
Standby Current at Mains Failure	300 mA
Number of Outputs	21
Charging Voltage in standby at 20° C (standby parallel mode)	27.6 V
Nominal Charging Current	4 A
Dimensions (w x h x d) with Connectors	483 x 2x 178 x 370 mm, 19“ / 2 x 4 HU
Weight	DEM 317 A: 30 kg DEM 317 B: 30.5 kg
Color	anthracite

DCS 400 Module Series

The **DCS 400** module series increases the possibilities of system control within the **PROMATRIX® System** in many aspects. The DCS system can be extended even after installation in case additional functions are required.
The modules exist in 2 versions:

The **DCS 4xx** board is a circuit board in Europe slot format which can be mounted to the rear panel of ELA rack cabinets or into appropriate junction boxes.

The **DCS 4xxR** modules are mounted into the **DCS 400** mounting frame.

The following modules are functionally identical, but have different designs.

- DCS 401 / 401R controller board / module
- DCS 408 / 408R line-relay board / module
- DCS 409 / 409R LF-relay board / module
- DCS 412 / 412R logic input board / module
- DCS 416 / 416R analog I/O board / module

The system includes internal self-resetting fuses for the positive and negative poles. Analog as well as digital regulators may be used in the **DCS** control system; by expansion of the system functions, additionally relay switching and remote monitoring are possible.
The **DCS** series includes an audio monitoring field for rack installation for control and monitoring of all channels.
The module system is run by a 24 V DC voltage supply and has secure card edge connectors allowing for quick removal and insertion of any card as well as plug-in binding posts for all contacts.

DCS 400 19”-Mounting Frames for DCS Modules

The **DCS 400** is a 19“-base unit of 2 HU.
It can host a control module as well as various relay modules, logic input modules and analog I/O modules which are connected via the internal back plane. In total, there are 10 slots available for the insertion of any desired **DCS 4xxR** module.

Specifications	DCS 400
Operating voltage	24 V DC, -10 / +30%
Dimensions (w x h x d)	483 x 88.1 x 336.5 mm; 19” / 2 HU,
Weight	5.6 kg

DCS 801R Control Module

The **DCS 801R** control module represents the interface for relay boards, logic input boards, analog level I/O boards, shielding modules, and rotary encoders. This module is controlled via remote CAN bus interface, for instance from a **P 64** Matrix Manager.

Specifications	DCS 801R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	146 g

DCS 401 / 401R Control Module

The modules **DCS 401** and **401R** are used as interface for relay boards, logic input boards, I/O boards for analog levels, audio monitoring module and rotary encoders.
It is controlled by the **DPM 4000** via an RS-485 remote interface.

Specifications	DCS 401
Dimensions (w x h x d)	160 x 25 x 100 mm
Weight	135 g
	DCS 401R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	207 g

DCS 405R Extension Module

This module allows the connecting of several DCS 400 rack frames and/or the adaptation of additional DCS 400 boards.

Specifications	**DCS 405R**
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	115 g

DCS 406R Shielding Module

The shielding module is meant for the protection and shielding between 100 V modules (DCS 408R) and LF-modules (e.g. DCS 409R).

Specifications	**DCS 406R**
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	71 g

DCS 407R Remote Control LF-Relay Module

This module provides switching facilities for audio signals (line level) or control outputs independent of any control device, such as the DCS 400 or the DCS 401 R. On the module, there are 4 LF-relays with 2 switching contacts each. Connection is effected via plug-in screw-flange binding posts for all contacts and coils.

Specifications	**DCS 407R**
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	163 g

DCS 408 / 409; 408R / 409R Line- / LF-Relay Module

These modules offer relay switching contacts for the switching of audio signals and other control functions. Connection is effected via plug-in screw-flange binding posts for all contacts and coils.
There are 5 LF-relays on the modules with 2 switching contacts each.

The **DCS 408 / 408R** module mainly provides switching of 70 V or 100 V speaker lines. However, it may also be used for supplying additional switching contacts in case of higher voltage or current.

Specifications	**DCS 408**
Dimensions (w x h x d)	160 x 20 x 100 mm
Weight	200 g
	DCS 408 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	225 g

The **DCS 409 / 409R** provides switching of audio signal (line level) or control outputs.

The modules are equipped with 5 relays with 2 switching contacts each.

Connection is effected via plug-in screw-flange binding posts for all contacts and coils.

Specifications	**DCS 409**
Dimensions (w x h x d)	160 x 17 x 100 mm
Weight	155 g
	DCS 409 R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	185 g

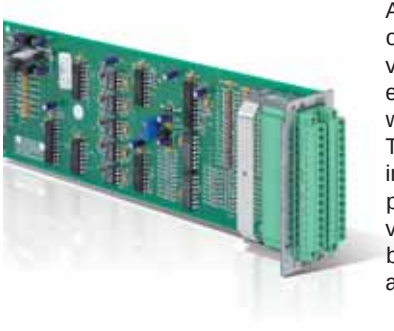
DCS 412 / 412R Logic Input Module

This model offers connection facilities for control lines, push buttons, switches and sensors, allowing the evaluation of their individual status (on/off) in the **DPM 4000** system.

The module has 12 inputs, each of them with selectable polarity. Connection is made through plug-in screw-flange binding posts for all inputs.

Specifications	**DCS 412 / 412R**
Input voltage for off (low)	UiN < + 5 V
Input voltage for on (high)	UiN > + 10 V
Max. Input voltage	UiN max = + 31 V
	DCS 412
Dimensions (w x h x d)	160 x 17 x 100 mm
Weight	110 g
	DCS 412R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	175 g

DCS 416 / 416R Analog I/O Module



This module offers 8 analog in- and outputs for control and monitoring functions.
Both, the inputs and outputs are capable of handling 0 to 10 V DC with 256 distinct levels.
Potentiometers for volume control can be interfaced using the provided reference voltage output.
Additionally, the control outputs supply analog voltages for controlling external devices equipped with analog inputs.
The module has 8 analog inputs and 8 analog outputs. Connection is made via plug-in screw-flange binding posts for all in- and outputs.

Specifications	**DCS 416 / 416R**
Inputs:	
Voltage range (min. – max.)	0 V ... 10 V DC
Maximum input voltage	50 V DC
Outputs:	
Voltage range (min. – max.)	0 V ... 10 V DC
	DCS 416
Dimensions (w x h x d)	160 x 25 x 100 mm
Weight	140 g
	DCS 416R
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	170 g

DCS 420 Audio Monitoring Unit

The audio monitoring unit is a 19“-2 HU device. It provides the acoustic and/or optical monitoring of power amplifier outputs (post-listening) as well as **DPM 4000** inputs (pre-listening) in a **PROMATRIX®** system. The **DCS 420** is controlled by the controller board DCS 401 or the control module DCS 401R.

Switching and displaying of up to 250 audio signal sources as well as volume control take place via buttons on the front panel. For audio monitoring, an integrated loudspeaker and a headphones connector (stereo phone type jack, 6.3 mm) are available.

Specifications	**DCS 420**
Dimensions (w x h x d)	483 x 88 x 103 mm; 19” / 2 HU
Weight	2.1 kg

DCS 421R Spare-Device Control Module

The control module **DCS 421R** in combination with DCS 422R and DCS 423R modules is used for monitoring control. It can be used for amplifier surveillance with automatic spare amplifier switching or for the permanent speaker-line monitoring. The setting of configuration and service functions is possible via binary switches.

Specifications	**DCS 421R**
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	187 g

DCS 422R AF-Input Switching

This module in combination with the DCS 421R is meant for audio frequency input switching with pilot tone generating and summing.
1 to 4 amplifiers plus 1 spare amplifier can be administrated.
Connection is made via plug-in screw-flange binding posts.

Specifications	**DCS 422R**
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	212 g

DCS 423R 100 V-Relay Switching and Permanent Line Monitoring

This module has 4 relays for 100 V switching of the amplifier outputs with pilot tone evaluation.
Also integrated are 5 pilot tone detection circuits which may be used either for amplifier surveillance or for the detection of speaker line faults. Connection is established with plug-in screw-flange binding posts.

Specifications	**DCS 423R**
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	376 g

DCS ANS Automatic Volume Control

The **DCS ANS** module (Ambient Noise Sensor) is a modular automatic volume adjustment device. It can be embedded into the DCS-system as independent module. The basic module contains a single-channel volume regulation which may be extended to a 2-channel-mode or even to up to three connected measuring microphone inputs.

Specifications	**DCS ANS**
Dimensions (w x h x d)	37.5 x 80.6 x 245 mm
Weight	200 g

Accessories

NRS 90240	Rotary Encoder	**NRS 90278**	ANS MIC Module
NRS 90245	Potentiometer	**NRS 90279**	ANS Extension Module

PARAMUS

With the **PARAMUS Contractor Line**, DYNACORD completes its wide range of power amplifiers within the realm of Permanent Installation.
The power amplifiers are particularly designed for challenging sound reinforcement tasks, background music / paging and public address system installations. Long term reliability, operational safety, flexibility and versatility are guaranteed.
The five models in the **PCL** series offer a variety of system design and implementation possibilities.

The **PCL 1225T** and **PCL 1240T** are equipped with distortion-free high performance output transformers and low-impedance outputs at 8 / 4 ohms.
Just like the **PCL 1125T**, they also provide floating loudspeaker outputs for 50 V, 70 V and 100 V installations.
PCL 1245 and **PCL 1415** are low-impedance amplifiers with no output transformers.

Premium Phoenix style screw-lock connectors ensure a more secure connection of audio signal and speaker cables.
The independent rear level controls allow setting the according power amp channel's overall amplification.

All **PCL** power amps feature different hi-pass filters with switch selectable cut-off frequency to attenuate unwanted low frequency signals.

Provided by each of the **PARAMUS** amplifier types are numerous protection circuits (short circuit, thermal overload, power-on delay, peak current limiters, to name a few), which not only prevent the power amplifier itself from being damaged but protect the connected loudspeaker systems as well.

All **PCL** models offer excellent headroom for a wide dynamic range on music signals. They are equipped with voltage limiters to protect the loudspeaker outputs against high distortion resulting in an output signal which never exceeds a THD (total harmonic distortion) of 1 %. Multi-stage cooling fans additionally guarantee absolute operational reliability even at increased operating temperatures.

Features

- Five versions available:

PCL 1245	2 x 450 W
PCL 1415	4 x 150 W
PCL 1240T	2 x 400 W (100 V)
PCL 1225T	2 x 250 W (100 V)
PCL 1125T	1 x 250 W (100 V)

- Compact 19" / 2 HU enclosure
- Phoenix style input connectors for easy installation
- Phoenix style connector block for all output modes
- Bridge mode operation on all multi channel models
- Switch selectable hi-pass filter at either 50 Hz or 300 Hz
- Independent rear level controls for each channel
- Front-to-rear cooling
- Multitude of protections.

PARAMUS

Specifications	PCL 1245		PCL 1415		PCL 1240T					PCL 1225T					PCL 1125T		
Load Impedance	8 Ω	4 Ω	8 Ω	4 Ω	8 Ω	4 Ω	100 V	70 V	50 V	8 Ω	4 Ω	100 V	70 V	50 V	100 V	70 V	50 V
Max. Midband Output (THD < 0.2 %, 20 Hz...20 kHz)	300 W	480 W	100 W	160 W	215 W	430 W	430 W	430 W	430 W	135 W	270 W	270 W	270 W	270 W	270 W	270 W	270 W
Rated Output Power (THD < 0.2 %, 20 Hz...20 kHz)	225 W	450 W	75 W	150 W	200 W	400 W	400 W 25 Ω	400 W 12.25 Ω	400 W 6.25 Ω	125 W	250 W	250 W 40 Ω	250 W 19.6 Ω	250 W 10 Ω	250 W 40 Ω	250 W 19.6 Ω	250 W 10 Ω
Channels	2		4		2					2					1		
Max. RMS Voltage Swing (THD = 1 %, 1 kHz)	44.7 V		32.1 V		44.7 V		117 V	82 V	59 V	35.4 V		117 V	82 V	59 V	117 V	82 V	59 V
Voltage Gain (at 1 kHz)	34.3 dB		30 dB		34.3		42.2	39.1	36.2 dB	32.2		42.2	39.1	36.2 dB	42.2	39.1	36.2 dB
Power Handling (at 1/8 max. output power, limited pink)	-	530 W	-	385 W	-	-	545 W	-	-	-	-	330 W	-	-	170 W	-	-
Input Sensitivity (at ROP or Voltage, 1 kHz)	0 dBu (775 mV)		0 dBu (775 mV)		0 dBu (775 mV)					0 dBu (775 mV)					0 dBu (775 mV)		
THD (MBW = 80 kHz, 1 kHz)	< 0.1 %		< 0.1 %		< 0.1 %		< 0.1 %			< 0.1 %		< 0.1 %			< 0.1 %		
Frequency Response (-1 dB, ref. 1 kHz)	< 10 Hz – 40 kHz		< 10 Hz – 40 kHz		65 Hz – 40 kHz					65 Hz – 40 kHz					65 Hz – 40 kHz		
Input Impedance (20 Hz…20 kHz symmetr.)	> 20 kΩ		> 20 kΩ		> 20 kΩ					> 20 kΩ					>20 kΩ		
Damping Factor (at 100 Hz / 1 kHz, 4 Ω)	> 250		> 250		> 250		-			> 250		-			-		
Signal to Noise Ratio S/N (A-weighted)	104 dB		101 dB		103 dB					103 dB					103 dB		
Power Requirements	15 V, 230 V / 50 Hz – 60 Hz																
Protection	audio-limiters, thermal overload, peak current limiters, power-on delay																
Cooling	front to rear																
Safety Class	I																
Dimensions (w x h x d)	483 x 88 x 405 mm, 19" / 2 HU																
Weight	16.5 kg		18 kg		26 kg					23.5 kg					16.5 kg		

DRM 4000 Audio Mixer and Router

The **DRM 4000** rack mixer offers 8 audio inputs and 2 audio outputs. The inputs are configured as 4 MIC/LINE channels and 4 AUX channels.
Each input channel can be assigned to either one or both output channels, allowing optionally dual mode (2-channel mono) or stereo mode.

Typical Applications

- Mixer for the sound reinforcement in conference rooms, multipurpose facilities, performance halls, restaurants, churches, etc.
- In **PROMATRIX®** systems, e.g. for connecting several audio sources or microphones with priority function and mixing ability
- In simple paging systems
- Integrated in media control systems.

Features

- 4 MIC/LINE input channels: XLR, electronically balanced, transformers are optionally available. Volume level controls on the front panel, pad switch + gain control + phantom power switch on rear panel; internally configurable High-Pass filter.
- 4 AUX input channels: 2 RCA-type connectors each; volume level control on the front panel.
- Sound controls (Lo/Hi) in all input channels; front panels accessible for adjustment with screwdriver.
- Signal / Peak LEDs (green / red) for level-monitoring of all input channels.
- All input channels can be freely assigned / mixed to the outputs. Control of the **DRM 4000** is effected from the DPM 4000 via remote interface connection, via control contacts or directly from a PC via an optional RS-232 interface.
- Direct outputs for monitoring the MIC/LINE and AUX channels, internal configuration for pre or post listening possible. The audio signals are present via Phoenix-type connectors on the rear panel.
- Connectors on the front panel: 1 MIC/LINE input (XLR) and 1 AUX input (2 x RCA-type connectors); sockets are parallel-wired to MIC/LINE 1 and AUX 1.
- Priority control (ducking function) for two microphone channels MIC 1 and MIC 2. Control happens either by external contacts, the audio signal level (via threshold control on front panel) or by remote signal. Active-indication-LEDs on the front panel.
- Limiters for microphone inputs MIC 1 and MIC 2 with internally adjustable threshold.
- 2 audio outputs: XLR, electronically balanced, transformers optionally available; separate master controls on front panel.
- Separate LED-chain level meters for each output channel, on front panel.
- Internal VCAs for both output channels.
  Connection facility for external volume control
  (remote control of master outputs).
  Control via serial interface
  (PC, DPM 4000, media control).
- MIX IN input for external signal feeds: 2 x RCA-type connectors, unbalanced. Level controls on rear panel.
- Send output for recording / stacking: 2 x RCA-type connectors, unbalanced.
- On-LED on front panel.
- Remote control via external contacts: ducking MIC 1 / MIC 2, preset switching, routing.
- Optional RS-485 control by DPM 4000.
- Optional RS-232 control directly from PC.
- 24 V power supply; 100 – 240 V AD power supply adapter optionally available.
- Power-On delay: delayed switching via relay to prevent power-On / -Off noise.

RS-232 Interface (optional)

- The editor software for PCs (under Windows) included in delivery of RS-232.
- Direct control of all routing possibilities via PC.
- Output level control via VCA.
- Configuration and storage of presets as well as preset switching via PC.
- Interface facility for connection to media control.

RS-485 Interface (optional)

- Control of all DPM 4000 routing possibilities via macros
- DPM 4000 ducking control via macros
- Output level control via VCA.
- Configuration and storage of presets via **PROMATRIX®** Designer software.
- Preset switching via DPM 4000.

Control Contact Interface

- 8 freely configurable control inputs (e.g. for preset switching, ducking control, muting, priority switching)
- 2 VCA control inputs A / B for remote volume control via external potentiometers.

Extension Kits

NRS 90233	input transformer
NRS 90227	output transformer
NRS 90257	power supply
NRS 90256	RS-485 interface
NRS 90258	RS-232 interface

Specifications	**DRM 4000**
Supply Voltage	24 V DC (19…32 V DC)
Nom. Power Consumption (24 V)	700 mA
Max. Power Consumption (24 V)	975 mA
Audio Inputs	4 x MIC/LINE, 4 x AUX, 1 x MIX IN
MIC/LINE Inputs	XLR-type sockets, electronically balanced, transformers retrofit
Nom. Input Level	MIC: -60 …-10 dBu / 0.8 mV … 245 mV; LINE: -30 …+20 dBu / 25 mV…7.75 V
Input Impedance	MIC: 3.6 kΩ LINE: 10 kΩ
Limiter Effective Range	-10 dBu…+20 dBu
AUX Inputs	2 x RCA-type connectors, unbalanced
Nom. Input Level	-6 dBu or +4 dBu / 390 mV or 1.23 V, internally configurable
Input Impedance	> 19 kΩ
MIX Inputs	2 x RCA type, unbalanced
Nom. Input Level	0 dBu / 775 mV
Input Impedance	19 kΩ
Audio Outputs MASTER Out A / B	XLR-type sockets, electronically balanced, transformers retrofit / optionally available
Nom. Output Level	0 dBu / 775 mV
Nom. Load Impedance	600 Ω
SEND	2 x RCA-type, unbalanced
Nom. Output Level	0 dBu / 775 mV
Nom. Load Impedance	< 100 Ω
DIRECT OUT	Phoenix Micro-Combicron terminal strip, unbalanced
Nom. Output Level	0 dBu / 775 mV
Output Impedance	< 100
Frequency Response	20 Hz – 20 kHz (-1.0 dB)
Dynamic Range	> 100 dB
Distortion MIC/LINE	> 0.03 %
Distortion AUX	> 0.01 %
Lo/Hi Sound Control	60 Hz / 13 kHz +15 dB
Lo Cut Filter	85 Hz / -3 dB
Ambient Temperature	5° - 40°C
Dimensions (w x h x d)	483 x 43.6 x 351 mm, 19” / 1 HU
Weight	4.7 kg

CPA 2000

The **CPA 2000** is an all-in-one electro acoustics central control system that comes in a compact sized desktop enclosure which, by using the optionally supplied rack-mount-ears, can easily be installed in a 19" rack. Within its height of only three units the **CPA 2000** offers similar features as usually only found in larger appliances. The internal power amplifier provides an output capacity of 200 W / 100 V (70 V / 50 V), and through the front panel control and switching interface with a reply function, it is capable of supplying the five separate signal lines.
The mixing section offers three electronically balanced inputs for the connection of microphones or line-level equipment (switchable) as well as three additional AUX-inputs. Each MIC/LINE-input provides individual controls for the adjustment of gain, volume, bass, and treble; the phantom power is on/off switchable, and the priority function (serial and block priority) can be internally configured.

Channel 1 is prepared for the operation with PTT microphones. The required signal of the three AUX-inputs is selected using a rotary control, and their volume, bass, and treble settings are accomplished by common controls. Connected to the RJ-45 socket, it is possible to operate up to three MT 2005 microphone terminals at the same time.

Additionally, the **CPA 2000** features 2-track output and insert line connectors and a 24 V input for the connection of an external battery as emergency power supply.
Extensive expansion features like the alarm / gong-module, a digital speech recorder, a voice-operated switch, transformer balanced inputs, and the remote control option for the main volume setting complete the picture of the **CPA 2000**.

MT 2005 Paging Console

The modern design of the **MT 2005** desktop-mount paging console is a perfect complement to DYNACORD's CPA 2000 compact electro acoustics system.

The gooseneck microphone provides a cardioid polar pattern and an integrated pop-filter. The electronics within the elegant desktop enclosure include microphone pre-amplifier, balancing stage, and a limiter. The current setting of the five speaker lines and different function switches (delete, all, chime, text, talk, stop) is displayed by status LEDs.
The alarm key is covered and optionally sealable.

Labeling of the buttons and switches is done with labeling strips which are inserted sideways underneath the front panel. For easy generating of these labeling strips, an MS-Word™ (Microsoft Word) template is included in delivery.

CPA 2000

Specifications	CPA 2000
Nominal Input Level	Input 1-3: 0.5 mV / 775 mV
	Input 4-6: 430 mV
Nominal Input Impedance	1 kΩ, > 5 kΩ, > 100 kΩ
Nominal Output Level	200 W
Nominal Load Impedance	50 Ω / 100 V
	25 Ω / 70 V
	12.5 Ω / 50 V
Frequency Range	60 – 20,000 Hz / -3 dB
Distortion (THD)	< 1% @ 1 kHz and nominal output
Sound to Noise Ratio	< 2.5 mV
Monitor Output	2 V / 600 Ω
Power Supply	230 V / 115 V AC, 50 / 60 Hz
Security Class	I
Dimensions (w x h x d)	440 x 135 x 350 mm
Weight	approx. 11 kg
Special Features:	
Ground Fault Monitoring acc. to DIN / V DE 0800; Pilot Tone Surveillance; Failure Indication Output; Emergency Power Supply option (24 V DC)	
Extension Kits:	
NRS 90212	Chime / Alarm (DIN 33404)
NRS 90213	Message Recorder
NRS 90170	Voice Switch (telephone)
NRS 90178	Remote Volume Control
NRS 90214	19” Mounting Kit
NRS 90139	Pre-amplifier Input AUX, balanced

MT 2005

MT 2005

Specifications	MT 2005
Microphone	Back-Electret cardioid microphone
Gooseneck	210 mm, black
Nominal Output Level	0 dBu, electronically balanced
Frequency Range	200 – 20,000 Hz / -3 dB (IEC 268.3)
Sound to Noise Ratio	-60 dB (IEC 268.3)
Power Supply	24 V DC / 100 mA
Connectors	RJ-45, 8-pole
Dimensions Enclosure (w x d x h)	199 x 158 x 52 mm
Weight	1.2 kg

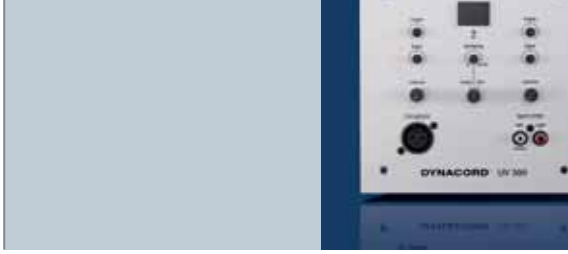
MV 500

The **MV 500** amplifier series consists of three desktop models differing in their power handling capacity between 30 watts (**MV 503**), 60 watts (**MV 506**) and 120 watts (**MV 512**).
All inputs can be controlled and mixed separately; a master level controller sets the overall volume. Bass and treble controls are provided to match music and speech programs according to individual audio preferences.

The balanced input 1 as well as the unbalanced input 4 are equipped with phone jacks.
Input 1 additionally provides a voice priority function for the overriding of signals from the remaining inputs.
The balanced inputs 2 and 3 feature XLR-type connectors for the connection of low-impedance microphones. To allow the use of condenser microphones, these two channels can be phantom powered; furthermore, they provide the opportunity for priority mode.
Input 5 is used for the connection of AM/FM tuners, CD players, MP3 players, or tape decks via RCA-type connectors.
An insert point between pre-amplifier and power amplifier offers the possibility to include an external equalizer or feed the mixed audio signal to an additional power amplifier.
The **MV 500** mixing amplifiers can be operated on mains or a 24 V DC power supply (battery).
By using the optionally available 19" rack mounting kit, integration into an existing rack system is easily accomplished.

MV 500

Specifications	**MV 503**	**MV 506**	**MV 512**
Power Handling Capacity	30 W	60 W	120 W
Speaker Outputs	25 V / 70 V / 100 V (20 Ω / 170 Ω / 330 Ω); 4 Ω	25 V / 70 V / 100 V (10 Ω / 83 Ω / 170 Ω); 4 Ω	25 V / 70 V / 100 V (5 Ω / 42 Ω / 83 Ω); 4 Ω
Frequency Range	50 – 15,000 Hz (±3 dB)		
Inputs: Input 1	6.3 mm phone / balanced, mic: 0.5 mV - 600 W		
Input 2-3	mic, XLR 3-pole / 0.5 mV – 600 W / balanced		
Input 4	6.3 mm phone / unbalanced, mic: 0.5 mV - 600 W		
Input 5	line, RCA-stereo / unbalanced / 100 mV - 220 kW		
Main-IN	binding post / 1 V - 10 kW		
Additional Outputs:			
PRE OUT	binding post / 1 V - 10 kW		
TAPE OUT	RCA stereo / 650 mV – 4.7 kW		
Sound Balance	Bass: ± 10 dB - 100 Hz / Treble: ± 10 dB - 10 kHz		
Dimensions (w x h x d)	420 x 88 x 280 mm, 19" / 2 HU		
Weight	6.9 kg	7.8 kg	10.0 kg



UV 300 Universal Pre-Amplifier

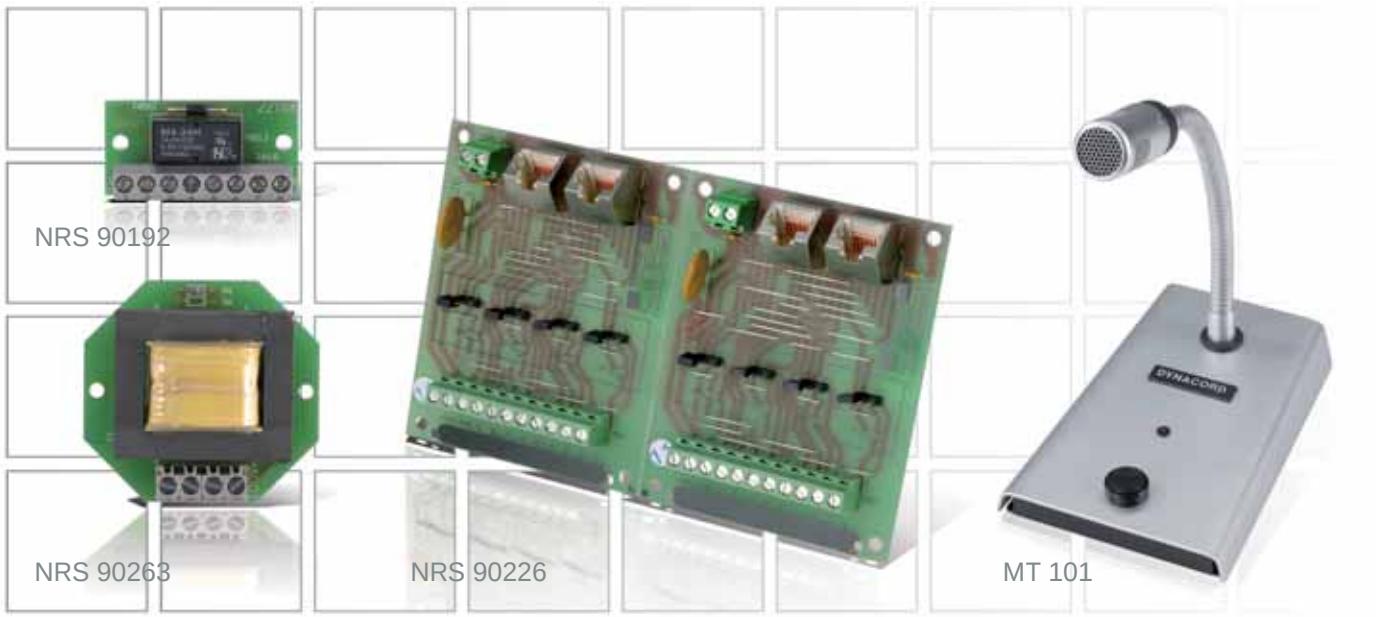
The **UV 300** is a 2-channel universal mixing pre-amplifier for microphones and AF sources for flush-mount installation in public address systems such as multipurpose facilities, congress centers, gymnasiums, etc.
The light-gray front panel provides an XLR socket for microphone (phantom power, internally switchable), cinch (RCA-type) sockets for audio sources such as tuner or CD player, and per channel separate level setters for the control of volume, bass and treble.

The **UV 300** amplifier can be switched to mixed mode, automatic damping of the line signals via of the microphone signal or to “Off”.

A cascade input facilitates the coupling of up to five **UV 300** modules. An optional switch or key switch offers the possibility for remote-control of the pre-amplifier.
The **UV 300** offers the ideal solution for local audio signal feed in numerous types of applications.

UV 300

Specifications	**UV 300**
Inputs:	
Microphone	5 mV / 2 mV (switchable via jumper)
Line	775 mV / 155 mV (switchable)
Outputs:	
Nom. Output Level	0 / +6 dBu (switchable)
Frequency Range	30…20,000 Hz / -3 dB
Interference Voltage (A)	< -54 dBu
Distortion (THD)	< 0.02 %
Sound Control	+ 12 dB / 100 Hz + 12 dB / 10 kHz
Power Supply	24 V DC
Power Consumption	60 mA
Dimensions (w x h x d)	170 x 170 x 60 mm
Weight	0.5 kg
Color	light-gray (RAL 7035)
Extension Kits:	
NRS 90189 Output Transformer	NRS 90231 key switch NRS 90230 key, button
Additional Accessory:	
Flush-mount wall housing	



NRS 90226

The extension kit **NRS 90226** consists of an adapter PCB (printed circuit board) for the connection of RJ-45 cables and single conductors. This PCB may be used for connecting paging stations, the interconnection of amplifier sub-systems, in distributed systems with networked DPM 4000 or for the connection of logic contacts to the NRS 90219 (I/O logic control module).
The **NRS 90226** is equipped with two RJ-45 sockets, an 11-pin binding post for line connection, and a 2-pin binding post for power supply. Wire bridges and jumpers on the board itself facilitate any cabling remarkably. The voltage supply line (for 24 V) is fused.

Specifications	NRS 90226
Dimensions (w x h x d)	80 x 25 x 100 mm
Weight	34 g

NRS 90263

The **NRS 90263** matching transformer allows galvanic separation of 100 V / 70 V loudspeaker signals, transforming them down to line level (2 V).

Specifications	NRS 90263
Dimensions (w x h x d)	53 x 31 x 50 mm
Weight	195 g

NRS 90192

The extension kit **NRS 90192** is a priority relay which can be integrated, for example, into a volume control, and on contact, volume will be set to maximum. This is indispensable when an audio signal, regardless of its volume control setting, must be audible with maximum sound pressure level during an alarm, an alarm text or a high priority announcement.

Specifications	NRS 90192
Power Consumption (24 V DC)	25 mA
Dimensions (w x h x d)	80 x 30 x 150 mm
Weight	50 g

MT 101

The paging station **MT 101** is a compact desktop paging station with noise-compensated dynamic gooseneck microphone.
It is equipped with a “talk“-button and an LED display. A 3 m cable for connection is included in delivery of an **MT 101**.

Specifications	MT 101
Nominal Impedance	200 Ω
Operating Voltage	24 V DC
Power Consumption (24 V DC)	12 mA
Dimensions Enclosure (w x h x d)	30 x 110 x 160 mm
Length Gooseneck	200 mm
Weight	approx. 1 kg

Additional Accessories:

URB 4/1 switch-over unit with relay **URB 4/2** switch-over unit with relay plus socket **NÜR** power monitoring relay

DG 330 DG 339

DG – 19“ Hinged Frame Racks

The models of the **DG Series** are racks for 19“ devices and their connection links and accessories. They are equipped with removable side panels and a 130° swiveling hinged support frame at the front.

For secure fixation of the racks, both wall or floor mounting is feasible. Cable entry is provided, optionally either from the rear or the bottom of the device.

The advantage in using a hinged frame lies in the rack’s increased stability as well as in the possibility of accessing the rear of the 19” cabinet and its cabling or other devices without having to move the rack itself.

The metal plate attached to the rear of the swiveling frame already includes the necessary drill holes for time-saving mounting of connector panels, cable channels and modules as, for example, of the DCS 400 series.
A metal front door can be installed to protect the device front from faulty operation.

Optionally available installation rails achieve more stabilization of the – partially very heavy – 19” racks and prevent mechanical impairment of devices and cabinets.

Specifications	**DG 330**	**DG 339**
Color / Finish	black enamel / RAL 9011	black enamel / RAL 9011
Dimensions (w x h x d)	800 x 1600 x 600 mm / 30 HU	800 x 2000 x 600 mm / 39 HU
Weight	79 kg	87 kg
Max. Load (swiveling frame)	300 kg	300 kg

Accessories (for all racks):		**Accessories (for DG racks):**	
BF 1	19“ blank panel, 1 HU	FD 30	metal front door for DG 330
BF 2	19“ blank panel, 2 HU	FD 39	metal front door for DG 339
BF 3	19“ blank panel, 3 HU	DR 200	mounting support rails for DG / HFR
BF 4	19“ blank panel, 4 HU		

HFR 30 FD

DEM 376

HFR – 19“ Hinged Frame Racks with Front Door, DEM – 19“ Desktop Housing

The **HFR Series** is construction-wise basically identical with the DG series. Both are hinged frame racks, designed to accept 19“ devices including their connections and accessories. The **HFR** carrier frame can be swung out by 130° to supply easy access to the rear of device and rack, without having to move the entire rack itself. The metal plate attached to the back of the carrier frame contains all necessary drill holes for time-effective mounting of connector panels, cable channels and modules as for instance of the DCS 400 series.

To prevent unwanted contact and mal-operation of the device front, all racks are equipped with front doors. A small-meshed metal grid ensures excellent air supply for ventilated devices and additionally facilitates view of the front panel indicators.

The **DEM** units are compact sheet steel panel housings for the acceptance of 19“-devices. They are equipped with ventilation slots in the bottom panel and the cover and, thus, securely ventilate the exhaust the heat of the installed devices to the outside.

Recessed grips at the sides of the **DEM** units facilitate their transport remarkably. Likewise, for easy connection of the devices, the rear panel of the enclosure is removable.

Specifications	**HFR 30 FD**	**HFR 39 FD**
Color	black enamel , RAL 9011	black enamel, RAL 9011
Dimensions (w x h x d)	800 x 1600 x 650 mm / 30 HU	800 x 2000 x 650 mm / 39 HU
Weight	95 kg	110 kg
Max. Load (swiveling frame)	300 kg	300 kg

Specifications	**DEM 376**	**DEM 379**
Color	white-gray, similar to RAL 7032	white-gray, similar to RAL 7032
Dimensions (w x h x d)	555 x 330 x 500 mm / 6 HU	555 x 462 x 500 mm / 9 HU
Weight	12.5 kg	14.7 kg

Accessories (for all racks):		**Accessories (for HFR racks):**	
BF 1	19“ blank panel, 1 HU	DR 200	mounting support rails for DG / HFR
BF 2	19“ blank panel, 2 HU		
BF 3	19“ blank panel, 3 HU	**Accessories (for DEM racks):**	
BF 4	19“ blank panel, 4 HU	ES 300	mounting support for DEM

GS 836

GS 421

GS – 19“ Racks

The models of the **GS Series** represent closed racks for acceptance of 19“-devices and their connection links. The rear and the side panels are removable; a rear cable inlet is provided, optionally at the bottom or at the top of the cabinet.
Both cabinet types have a slotted top panel for improved ventilation of the device’s exhaust heat to the outside.

The models **GS 430** and **GS 436** are equipped with a movable base frame; the versions **GS 412** and **GS 421** can optionally be retrofitted with such base frames.

The models **GS 812**, **GS 821**, **GS 830** and **GS 836** are construction-wise identical to the corresponding **GS 4xx** racks, but additionally equipped with a plexiglas front door. Ventilation slots integrated into this door supply enough fresh air to the installed devices.

Specifications	**GS 412 / GS 812**	**GS 421 / GS 821**
Color / Finish	black enamel, RAL 9011	black enamel, RAL 9011
Dimensions (w x h x d)	515 x 570 x 565 / 585 mm, 12 HU	515 x 970 x 565 / 585 mm, 21 HU
Weight	16 / 19 kg	20 / 24 kg

Specifications	**GS 430 / GS 830**	**GS 436 / GS 836**
Color / Finish	black enamel, RAL 9011	black enamel, RAL 9011
Dimensions (w x h x d)	515 x 1470 x 565 / 585 mm, 30 HU	515 x 1735 x 565 / 585 mm, 36 HU
Weight	26 / 30 kg	30 / 34 kg

Accessories (for all racks):		**Accessories (for GS racks):**	
BF 1	19“ blank panel, 1 HU	GS 400	mounting support rails for GS
BF 2	19“ blank panel, 2 HU	GS 120	movable base frame for GS 412 / 812 and GS 421 / 821
BF 3	19“ blank panel, 3 HU		
BF 4	19“ blank panel, 4 HU		

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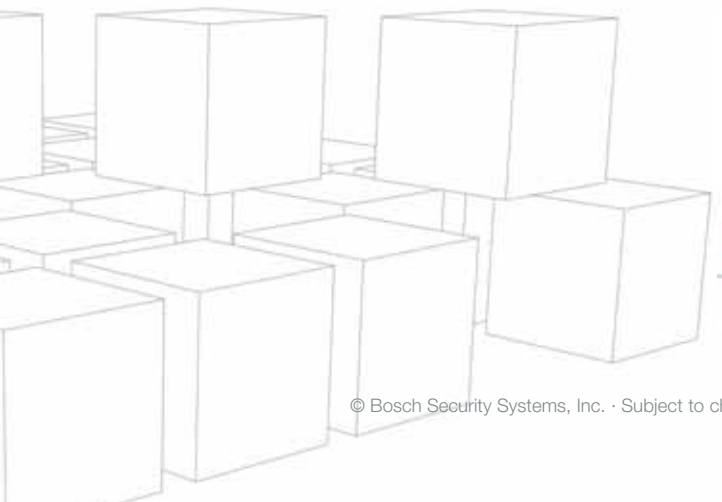

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